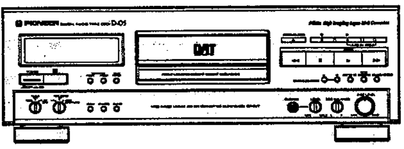
PIONEER®
The Art of Entertainment

Service Manual



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DIGITAL AUDIO TAPE DECK

D-05

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	D−05		
HEM	○	AC220−230V	AC230−240V, *

*: Alter the wiring of the Power-supply block at the primary winding of Power transformer referring to the "Line Voltage Selection" described in Service Manual.

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CHAPTER 1

1.1 SPECIFICATIONS

Type	Rotating head digital audio tape recorder
Tape speed	HIGH SAMPLING: 16.3 mm/sec SP: 8.15 mm/sec LP: 4.075 mm/sec
Recording time	HIGH SAMPLING: 60 minutes max. SP: 120 minutes max. LP: 240 minutes max.
Number of channels	2 channels, stereo
Number of quantization bits	16 bits, linear 12 bits, nonlinear
Sampling frequencies (Provided SCMS)	48kHz (recording, playback) 44.1kHz (digital recording only, playback) 96kHz (HIGH SAMPLING: analog input recording only, playback) 32kHz (SP: digital recording only, playback) 32kHz (LP: recording, playback)
Error correction method	Double encoded, Reed-Solomon code
Modulation system	8-10 conversion
Emphasis	Recording: Fixed at OFF Playback: Switched automatically
Head	AT-construction Sendust head
Recording/playback frequency response	WIDE: 5Hz - 44kHz SP: 5Hz - 22kHz LP: 5Hz - 14.5kHz
Signal-to-Noise ratio	91 dB or greater
Dynamic range	91 dB or greater
Total harmonic distortion	0.0045% or less (1 kHz)
Wow and flutter	Below measurable limit (± 0.001% W. PEAK)

■ Analog Input/Output Terminals

Line input jacks	RCA PIN; reference input level 500mV (input impedance 27 kΩ)
Line output jacks	RCA PIN; reference output level 500mV (output impedance 1kΩ)
Headphone output jack	Stereo standard jack, 6 mm diameter (1.0mW volume max., load impedance 8Ω)

■ Digital Input/Output Terminals

Coaxial input terminal	RCA PIN; 0.5 Vp-p (input impedance 75 Ω)
Coaxial output terminal	RCA PIN; 0.5 Vp-p (output impedance 75 Ω)
Optical input terminal	x 1

■ Provided Functions

- Wide Range (HIGH SAMPLING) mode
- Long Play (LP) mode
- Character Pack function
- High-speed AI search
- Program selection
- Skip tune selection and Music Search
- Direct tune selection
- Music repeat
- Skip play
- Renumbering with TOC recording
- End mark recording, end search, blank search
- Auto ID recording
- 7-mode counter
- Automatic tape thickness computing type remaining tape display
- Digital peak margin display
- Timer recording/playback
- Cue/review (with fine cue/review)
- REC muting (auto spacing)
- Display OFF

■ Power Supply and Other Specifications

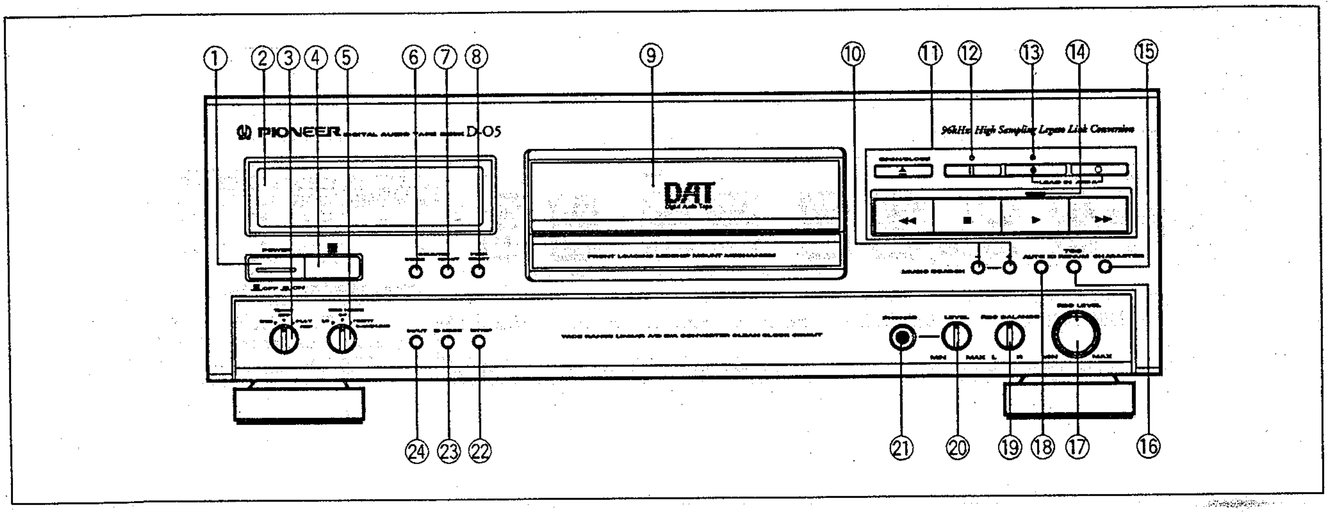
Power source	AC 220 - 230 V, 50/60Hz
Power consumption	21W
Dimensions	420(W) X 140(H) X 383(D) mm
Weight	6.4 kg

■ Accessories

Wireless remote control unit	1
Remote control unit batteries (IEC R03)	2
Connection cords (RCA pin-plug, stereo)	2
Operating instructions	1
Warranty card	1

NOTE:
The specifications and design of this product are subject to change without notice, due to improvement.

1.2 PANEL FACILITIES



Front panel

① **POWER switch**
Operation of the unit becomes possible approximately 4 seconds after the power is turned on.

② **Display window**

③ **TIMER switch (REC/OFF/PLAY/REP)**
Be sure to set this switch to OFF when not using the timer function.

④ **Remote sensor window**

⑤ **REC MODE switch**
- LP: Long Play mode. Set to this position for long-hour recording of analog signal and digital signal with a sampling frequency of 32 kHz.
- SP: Standard play mode. Usually set this switch to this position.
- HIGH SAMPLING: Wide range mode. With this position, only analog signals can be recorded. A wide range recording beyond 40 kHz is possible, but the recording time is halved from the SP mode.

⑥ **COUNTER MODE button**

⑦ **COUNTER RESET button**

⑧ **PEAK RESET button**

⑨ **Cassette tray**

⑩ **MS +/– buttons**
Press in Music Search or skip search operation.

⑪ **▲: Open/close button**
- ■: **Stop button**
  Press to stop tape transport or to clear the program memory.
- ◄◄: **Rewind button**
  Pressing this button during playback starts review operation.
- ►►: **Fast Forward button**
  Pressing this button during playback starts cue operation.
- ►: **Play button**
- ●: **Rec button**
- II: **Pause button**
  Tape transport cannot be paused during fast forward or rewind operation.
- O: **Mute button**

⑫ **Pause indicator**
Indicates that the unit is in pause condition.

⑬ **Recording indicator**
Indicates that the unit is in recording mode.

⑭ **Playback indicator**
Indicates that the unit is in playback mode.

⑮ **CHARACTER button**
Press to record or display character data.

⑯ **TOC RENUM button**

⑰ **REC LEVEL control**
Turn the knob to set the recording level when analog signal are input.

⑱ **AUTO ID button**
During recording:
Press for automatic recording of start-IDs. (This function is turned off automatically in case of timer recording.)
During playback:
Press to skip unwanted tunes.(Skipping occurs from a skip-ID until the next start-ID.)
- The set condition remains memorized even when the power is switched OFF.

⑲ **REC BALANCE control**

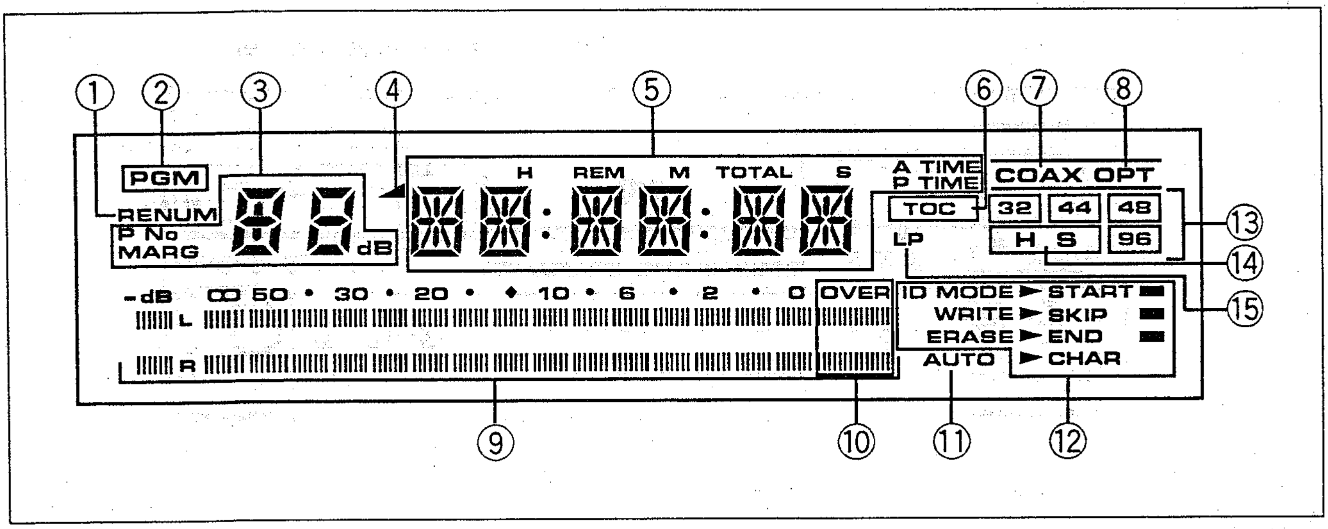
⑳ **PHONES LEVEL knob**

㉑ **PHONES jack**

㉒ **ENTER button**
Press to record or erase subcodes.

㉓ **ID MODE button**
Press to select an ID mode.

㉔ **INPUT selector button**
Set to select the recording input source.
- The set condition remains memorized even when the power is switched OFF.


①
②
③
④
⑤
⑥
⑦
⑧
PGM
RENUM
P No
MARG
dB
H
REM
M
TOTAL
S
A TIME
P TIME
TOC
LP
COAX
OPT
32
44
48
H
S
96
⑬
⑭
⑮
-dB
∞
50
30
20
10
6
2
0
OVER
L
R
ID MODE ► START
WRITE ► SKIP
ERASE ► END
AUTO
► CHAR
⑨
⑩
⑪
⑫

Display

① **RENUM (renumber) indicator**
② **PGM indicator**
③ **Tune number/peak margin display**
④ **Left More character indicator (◢)**
In the character entry mode, indicates the presence of one or more characters hidden to the left of the display.
⑤ **Counter indicators**
In the long play (LP)mode and the wide range (HIGH SAMPLING) mode, absolute time (A-TIME), remaining play time (REMAIN)and total play time (TOTAL) are displayed, based on those in the standard mode. To obtain the actual time, double each value in the long play mode, and half each value in the wide range mode.
⑥ **TOC indicator**
⑦ **COAX indicator**
Indicates that coaxial digital input has been selected with the INPUT selector button.
⑧ **OPT indicator**
Indicates that optical digital input has been selected with the INPUT selector button.
⑨ **Digital-drive level meter**
⑩ **OVER level indicator**
⑪ **AUTO indicator**
⑫ **ID MODE indicators**
⑬ **Sampling frequency indicator**
⑭ **HS indicator**
Indicates that the unit is in wide range (HIGH SAMPLING) mode.
⑮ **LP indicator**

1.3 DISASSEMBLY

● DAT MECHANISM ASSEMBLY

1. Remove the bonnet case.
2. Remove the flexible P.C.Board of the CN03, CN04, and CN05 and the connectors CN06, CN07, and CN08 of the MAIN unit and the connector CN02 of the RF unit.
3. Remove the five screws ① and remove the loading mechanism section. (Refer to Fig. 1.)
4. Remove the two flexible P.C.Board and the connector wires from the slot of section Ⓐ. (Refer to Fig. 2.)
5. Remove the four screws ② and the four mechanism mounting springs, and remove the DAT mechanism assembly from the cassette installation unit. (Refer to Fig. 2.)

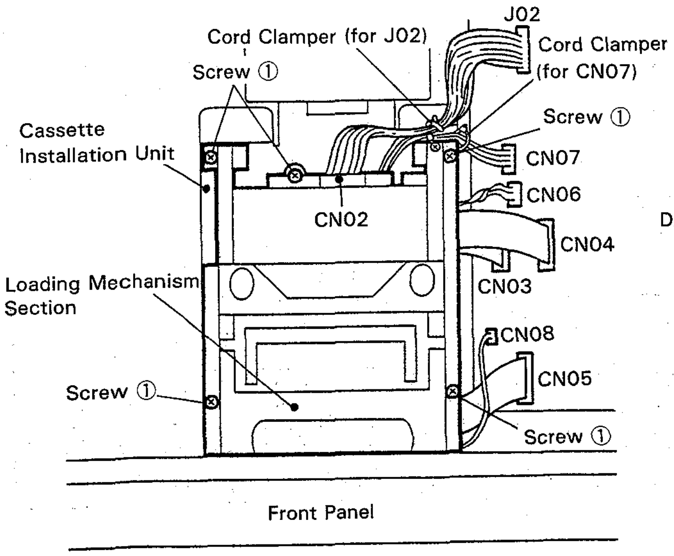

J02
Cord Clamper (for J02)
Cord Clamper (for CN07)
Screw ①
Cassette Installation Unit
Screw ①
CN07
CN06
CN02
CN04
Loading Mechanism Section
CN03
CN08
CN05
Screw ①
Screw ①
Front Panel

Fig. 1

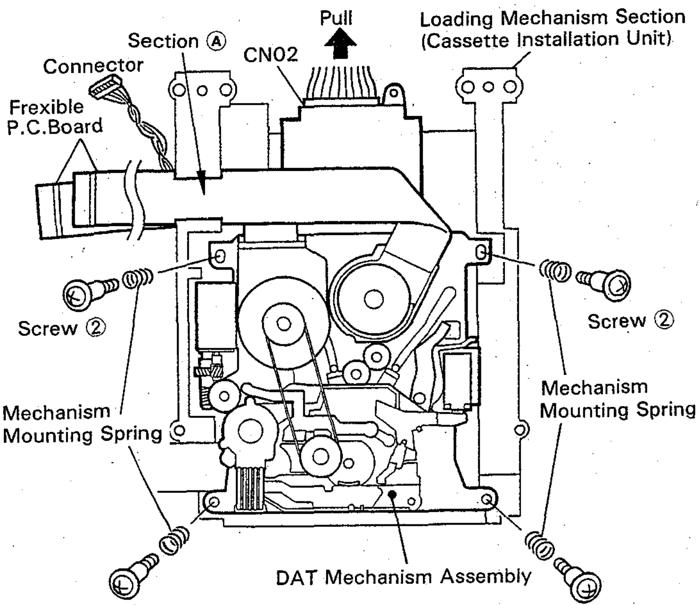

Pull
Loading Mechanism Section (Cassette Installation Unit)
Section Ⓐ
CN02
Connector
Frexible P.C.Board
Screw ②
Screw ②
Mechanism Mounting Spring
Mechanism Mounting Spring
DAT Mechanism Assembly
Screw ②
Screw ②

Fig. 2

Preparations Before Adjustment (at the time of pull guide adjustment)

1. Remove the cassette installation unit from the product and remove the wiring material of the DAT mechanism assembly from the MAIN unit.
2. Remove the DAT mechanism assembly from the cassette installation unit.
3. Place the DAT mechanism assembly so onto the mechanism stay that the motor pulley at the lower surface is not in contact with anything, and fix the shield case of the DAT mechanism assembly with a screw. (Refer to Fig. 3.)
4. Insert the wire material of the DAT mechanism assembly into the MAIN unit. (Adjustment of the DAT mechanism assembly is done in this condition.)

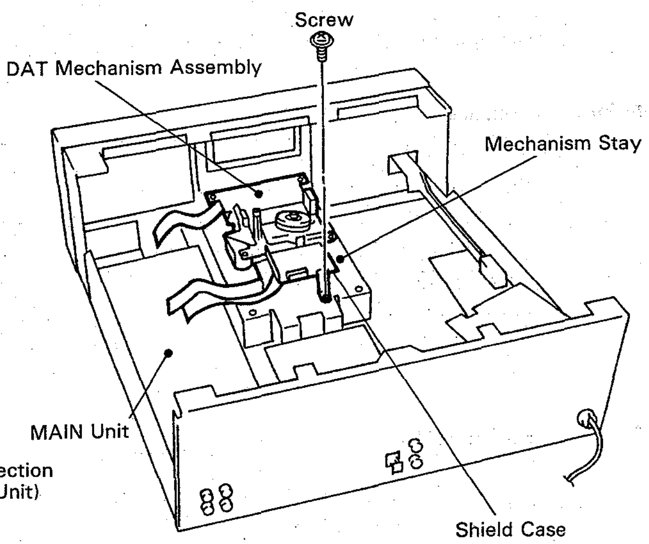

Screw
DAT Mechanism Assembly
Mechanism Stay
MAIN Unit
Shield Case

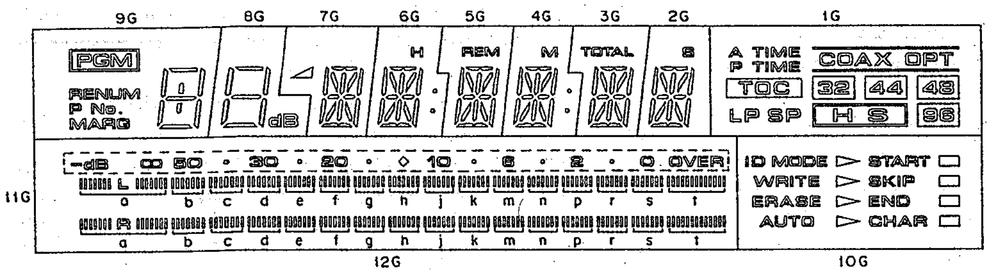
Fig. 3

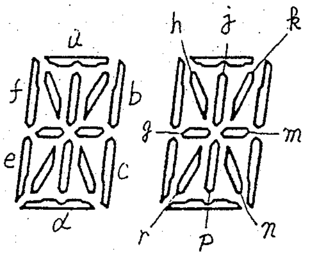
1.4 FL INFORMATION

■ RAW1135 (V1601 : DISPLAY A UNIT)

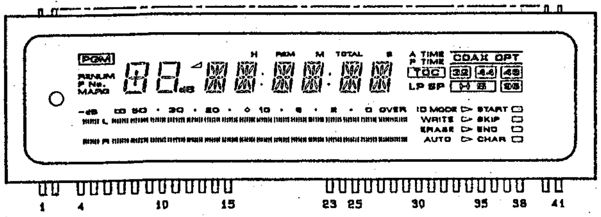
● FL Tube

● Grid Assignment


9G
8G
7G
6G
5G
4G
3G
2G
1G
PGM
RENUM
P No.
MARG
dB
H
REM
M
TOTAL
S
A TIME
P TIME
COAX OPT
TOC
32
44
48
LP SP
H S
96
11G
-dB ∞ 50 30 20 ◇ 10 6 2 0 OVER
L
R
a b c d e f g h j k m n p r s t
ID MODE ▷ START ☐
WRITE ▷ SKIP ☐
ERASE ▷ END ☐
AUTO ▷ CHAR ☐
12G
10G


a
f
b
g
e
c
d
h
j
k
m
r
p
n

● Pin Assignment


1
4
10
15
23
25
30
35
38
41

● Pin Connection

TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11									
ELECTRODE	F1	F1	NP	12G	11G	10G	9G	8G	7G	6G	5G									
TERMINAL NO.	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
ELECTRODE	4G	3G	2G	1G	NP	NP	NP	NP	NP	NP	NP	P s16	P s15	P s14	P s13	P s12	P s11	P s10	P s9	P s8
TERMINAL NO.											32	33	34	35	36	37	38	39	40	41
ELECTRODE											P s7	P s6	P s5	P s4	P s3	P s2	P s1	NP	F2	F2

Notes F: Filament NP: No Pin
G: Grid
P: Anode

● Anode Connection

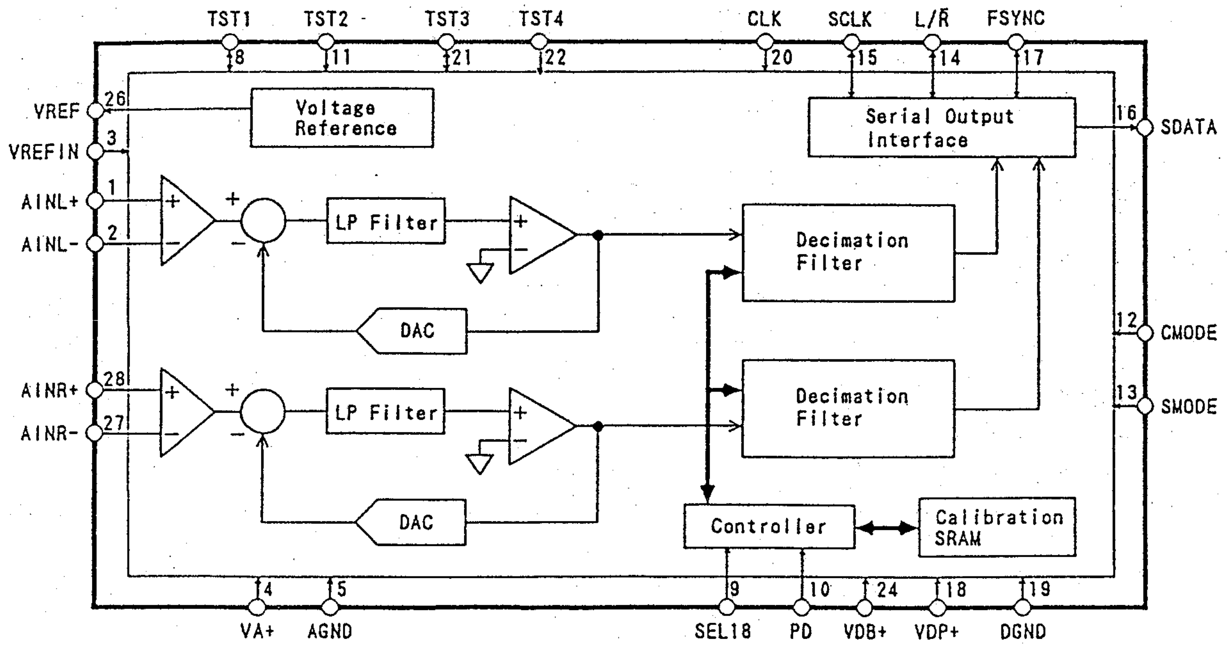
	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
S1	a	a	☐ (CHAR)	a	a	a	a	a	a	a	a	A TIME
S2	b	b	☐ (END)	b	b	b	b	b	b	b	b	P TIME
S3	c	c	☐ (START)	PGM		j	j	j	j	j	j	═══
S4	d	d	CHAR	RENUM		k	k	k	k	k	k	OPT
S5	e	e	☐ (SKIP)	h ¦		h	h	h	h	h	h	COAX
S6	f	f	▷ (SKIP)	f	f	f	f	f	f	f	f	H S
S7	g	g	▷ (END)	g	g	g	g	g	g	g	g	32
S8	h	h	▷ (CHAR)	P No.		m	m	m	m	m	m	44
S9	j	j	▷ (START)	c	c	c	c	c	c	c	c	TOC
S10	k	k	AUTO	MARG	dB	n	n	n	n	n	n	48
S11	m	m	ERASE			p	p	p	p	p	p	96
S12	n	n	WRITE	e	e	e	e	e	e	e	e	SP
S13	p	p	ID MODE	d	d	d	d	d	d	d	d	LP
S14	r	r				r	r	r	r	r	r	
S15	s	s				⊿	H :	REM	M :	TOTAL	s	
S16	t	t	START SKIP END									

1.5 IC INFORMATION

- *The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.*

■ AK5340A−VS (IC902 : MAIN UNIT)

- **A/D Converter**
- Block Diagram


TST1
TST2
TST3
TST4
CLK
SCLK
L/R̄
FSYNC
8
11
21
22
20
15
14
17
VREF
26
VREFIN
3
AINL+
1
AINL-
2
AINR+
28
AINR-
27
Voltage Reference
Serial Output Interface
16
SDATA
LP Filter
LP Filter
Decimation Filter
Decimation Filter
DAC
DAC
12
CMODE
13
SMODE
Controller
Calibration SRAM
4
5
9
10
24
18
19
VA+
AGND
SEL18
PD
VDB+
VDP+
DGND

- Pin Function

No.	Pin Name	I/O	Function
1	AINL+	I	Lch analog non-inverting input pin
2	AINL−	I	Lch analog inverting input pin
3	VREFIN	I	Reference voltage input pin Normally, connection is made to the VREF pin. 1.6 times of the voltage difference entered between VA+ and this pin becomes the input range.
4	VA+	−	Analog part Analog power supply pin, +5V
5	AGND	−	Analog part Analog ground pin
6			NC*
7			
8	TST1		Test pin Open or connect to the DGND pin.
9	SEL18	I	Output data length selection pin (with pull-down resistance) L: 16 bits, H: 18 bits
10	PD	I	Power-down pin Power-down mode is reached at the time of "H". Offset calibration is started from the drop. At the time of power ON and when the clock frequency has been changed, calibration must be executed once.
11	TST2		Test pin Open or connected to the DGND pin
12	CMODE	I	Master clock selection pin "L" : CLK=256fs (fs=∼98kHz) "H" : CLK=384fs (fs=∼50kHz)
13	SMODE	I	Interface clock selection pin The input and output for each clock pin of L/R̄, SCLK, FSYNC is set. "L": Slave mode (all pins are input pins.) "H": Master mode (all pins are output pins.)
14	L/R̄	I/O	Input channel selection pin Slave mode: Input of the fs clock. The MSB data of Lch are put out with the rise edge, and the MSB data of Rch are put out with the drop edge. Master mode: Output of the fs clock. 1 SCLK after the L/R̄ edge, SDAT is put out. "H" at the time of power-down (PD="H").
15	SCLK	I/O	Serial data clock pin 1 bit output of the output data with the drop of the voltage at this pin. Slave mode: Normal. 32 fs to 64 fs clock input. Master mode: 64 fs clock output. "L" at the time of power-down (PD="H").
16	SDATA	O	Serial data output pin The data are put out from MSB in 2's complements. After 16/18 bit output, this becomes "L". "L" at the time of power-down (PD="H").
17	FSYNC	I/O	Frame sync clock pin Slave mode: SDATA output is enabled at the time of "H". Master mode: Output of a 2 fs clock. "H" during output of 16 bit data output. Accordingly, when 18 bit output is selected, the two least significant bits become "L". "L" at the time of power-down (PD="H").
18	VDP+	−	Digital part Power supply pin, +5V
19	DGND	−	Digital part Ground pin
20	CLK	I	Master clock input pin CMODE="H": 384fs CMODE="L": 256fs
21	TST3		Test pin Open or connected to the DGND pin
22	TST4		
23			NC*
24	VDB+	−	Digital part Power supply pin, +5V (silicon P. C. Board potential)
25			NC*
26	VREF	O	Reference voltage output pin, (VA+) −2.6V Output is made with VA+ as reference. Normally, this output is connected to the VREFIN pin.
27	AINR−	I	Rch Analog inverting input pin
28	AINR+	I	Rch Analog non-inverting input pin

*: NC pins are not bonded internally.

PDG119A (IC503 : MAIN UNIT)

- **System Controller IC**
- Pin Function

No.	Pin Name	I/O	Function	CPU
1	ENC3	I	Mechanism encoder output BIT3 input terminal	PF3
2	ENC0	I	Mechanism encoder output BIT0 input terminal	PF4
3	x256	O	256/384 Fs clock selection control output terminal. "H" at the time of Fs=32 (kHz) recording/playback (when ID2 of PCM ID is "10"). (It also becomes "H" at the time of Fs=64 (kHz) WSP/WLP mode.)	PF5
4	x44PB	O	Master clock selection control output terminal. The master clock at the time of Fs=44.1 (kHz) recording/playback is selected and oscillated. Clock oscillation with "L". (This also becomes "H" at the time of Fs=88.2 (kHz) WSP mode.)	PF6
5	x4832PB	O	Master clock selection control output terminal. The master clock at the time of Fs=48/32 (kHz) recording/playback is selected and oscillated. Clock oscillation with "L". (This also becomes "H" at the time of Fs=96/64 (kHz) WSP/WLP mode.)	PF7
6	D IN	O	Digital input recording mode monitor output terminal. "H" with digital input recording mode. It is used for mute processing at the time of RX PLL unlocking.	PD0
7	OCSL	O	Digital input optical/coaxial selection output terminal. "H" at the time of selection of optical.	PD1
8	xDARST	O	Audio block reset output terminal. "L" at the time of power ON, Fs, REC/PB switching, the audio block (A/D converter, D/A converter) is reset.	PD2
9	MLE	O	D/A converter mode set latch output terminal. Connected to the LATCH terminal (20 pins) of PD2029A (IC903). The transmission data from the microcomputer are latched with the rising edge (↑).	PD3
10	WSMODE	O	Audio block double-speed switching output. A/D, D/A block switching is executed according to the operation mode. "H" at the time of WSP, WLP mode.	PD4
11	PBMUTE	O	Playback mute control output terminal. Connected to the mute terminal (1 pin) of the signal processing LSI (HD49226AFS: IC501). Mute (digital mute) ON/OFF control for the playback output signal. Mute ON with "H".	PD5
12	LV DATA	I	Level meter data input terminal. Connected to the LVDATA terminal (97 pins) of the signal processing LSI (HD49226AFS: IC501).	PD6
13	LVCK	O	Level meter data clock output terminal. Connected to LVCK terminal (96 pins) of the signal processing LSI (HD49226AFS: IC501). The shift clock for level data reading each half frame is generated by 8 pulses each in the sequence of L (ch), R (ch). (One frame each in WSP mode.)	PD7
14	Q DATA	I	CD Q data input terminal. Connected to the QDATA terminal (68 pins) of the signal processing LSI (HD49226AFS: IC501).	PC0
15	QDCK	O	CD Q data shift clock output terminal. Connected to the QDCK terminal (67 pins) of the signal processing LSI (HD49226AFS: IC501). The shift clock for reading of CD Q data each frame is generated by 8 pulses each in the sequence of TNO, INDEX.	PC1
16	LPMODE	O	LP mode selection output terminal. Connected to the LP terminal (60 pins) of the signal processing LSI (HD49226AFS: IC501). Selection of the operation mode of the signal processing LSI at the time of LP playback mode. "H" at the time of WSP mode. (Half speed LP playback is executed at the time of WLP mode.) "L" in the other modes: LP, SP, WSP. (LP mode executes double scan LP playback. In SP and WSP mode, the status of this terminal has no influence onto the operation.)	PC2
17	PLTL	I	Pilot level status monitor input terminal.	PC3
18	RF	I	RF signal Yes/No monitor input terminal.	PC4
19	CRLOCK	I	Capstan reel lock monitor input terminal.	PC5
20	DLOCK	I	Drum lock monitor input terminal.	PC6
21	PLLLOCK	I	DPLOCK monitor at the time of PLAY, PLLLOCK monitor input terminal at the time of high-speed search.	PC7
22	ATFDET	I	ATFDET monitor at the time of PLAY, HOLD monitor input terminal at the time of high-speed search.	PH0
23	ATFM	I	ATF monitor at the time of PLAY, HUNT monitor input terminal at the time of high-speed search.	PH1
24	xSRVRST	O	Servo LSI reset output terminal. Connected to the RESET terminal (61 pins) of the servo LSI (HD49228FS: IC601). Resets the servo LSI at the time of power ON/OFF and with switching from search mode to any other mode.	PH2
25	BRAKE	I	Drum brake control monitor input terminal.	PH3
26	RFMODE	O	RF amplifier operation mode switching output terminal. Connected to the MODE1 terminal (42 pins) of the RF amplifier IC (HA12154MA: IC301). "H" at the time of WSP mode. Control of the second amplifier and the equalizer of the RF amplifier.	PH4
27	TEST	O	Data strobe LSI test mode control output terminal. Connected to the TEST terminal (54 pins) of the data strobe LSI (HD49229: IC504). "H" at the time of VCO free run adjustment mode (at the time of test mode). At this time, the xSER terminal must be "H".	PH5
28	xSER	O	Data strobe LSI search mode control output terminal. Connected to the SEARCH terminal (1 pin) of the data strobe LSI (HD49229). "L" at the time of search run mode like FF, REW, etc. At this time, the TEST terminal must be "L".	PH6
29	RP	O	RF amplifier recording/playback mode switching output terminal. The AND output with the RECPB terminal (24 pins) output of the signal processing LSI (HD49226AFS: IC501) is connected to the RECPB terminal (39 pins) of the RF amplifier IC (HA12154MA: IC301). RF amplifier IC recording and playback mode switching is executed. The output from this microcomputer is for protection.	PH7
30	xRST	I/O	System reset terminal. "L" level active. Connected to the output terminal (5 pins) of the reset IC (M51957: IC505).	$\overline{\mathrm{RST}}$
31	EXTAL	I	System clock oscillation ceramic resonator connection terminal. (Input.) An 8.38 (MHz) ceramic resonator is connected to the 40 pins.	
32	XTAL	O	Ceramic resonator connection terminal for system clock oscillation. (Output.)	XTAL

No.	Pin Name	I/O	Function	CPU
33	Vss	–	GND terminal. Connected to GND.	Vss
34	NC	O	Not used	TX
35	NC	O		TEX
36	AVss	–	A/D converter GND terminal. Connected to GND.	AVss
37	AVREF	–	A/D converter reference voltage output terminal. Connected to the 5 (V) line.	$\mathrm{AV_{REF}}$
38	LMUTE	O	Line mute control output terminal. Line mute (analog mute) ON/OFF is executed. Mute ON with "H".	PA0/AN0
39	xOPRST	O	Operation controller reset output terminal. Operation controller reset with "L". Output of "L" at the time of power ON.	PA1/AN1
40	xOPREQ	O	Communication request output terminal to operation controller. Operation controller starts communication with system control at the dropping edge (↓) of xOPREQ. "L" during communication with operation controller.	PA2/AN2
41	LPRUN	O	LP run mode monitor output terminal. "H" in LP run mode (tape speed=4.075 mm). ("L" in SP, WSP, and WLP run mode.)	PA3/AN3
42	OPACK	I	Communication permission input terminal from operation controller. System control starts communication with operation controller at the edge of xOPACK. Inversion is executed upon completion of each 1 byte communication.	PA4/AN4
43	xADJ	O	TACH adjustment mode output terminal. "L" output at the time of adjustment mode.	PA5/AN5
44	T TOP	I	Input terminal for tape top sensor output. Used as AN6 (analog input).	PA6/AN6
45	T END	I	Input terminal for tape end sensor output. Used as AN7 (analog input).	PA7/AN7
46	FGS	I	Supply-side FG input terminal. Used as interrupt terminal (CINT).	PB0/CINT
47	CTRL	I	Microcomputer data transmission mode input control signal/microcomputer command control signal output terminal. Connected to the CTRL terminal (2 pin) of the signal processing LSI (HD49226AFS: IC501) and the CTRL terminal (3 pin) of the servo LSI (HD49228FS: IC601).	PB1/$\overline{\mathrm{CS0}}$
48	CCK	O	Serial data transmission clock output terminal. Used as SCK0 terminal. Connected to the shift clock input terminal of the device (signal processing LSI, servo LSI, operation controller, D/A converter) controlled by serial communication from the microcomputer. The serial clock period is 1.95 (μs) for the signal processing LSI and the servo LSI, while it is 3.8 (μs) for operation controller and D/A converter and the interval clock period is 30.5 (μs) for the signal processing LSI and the servo LSI, while it is 61 (μs) for operation controller and D/A converter.	PB2/$\overline{\mathrm{SCK0}}$
49	CDATAO	I	Serial data input terminal. (Matched to the terminal names on the side of the signal processing LSI. The data input/output direction is opposite to the name.) Used as SIO terminal. Connected to the serial data output terminal of the device (signal processing LSI, operation controller) controlled by serial communication from the microcomputer.	PB3/SI0
50	CDATAI	O	Serial data output terminal. (Matched to the terminal names on the side of the signal processing LSI. The data input/output direction is opposite to the name.) Used as SO0 terminal. Connected to the serial data input terminal of the device (signal processing LSI, servo LSI, operation controller, D/A converter) controlled by serial communication from the microcomputer.	PB4/SO0

No.	Pin Name	I/O	Function	CPU
51	NC	O	Not used	PB5/$\overline{\text{SCK1}}$
52	HUNT	O	Encoder hunting prevention output terminal. Output of xOR for LDM ON and MDM ON.	PB6/SI1
53	xDMUTE	O	Double speed digital out control output terminal. Digital out prohibition with "L".	PB7/SO1
54	FSYNC	I	Frame sync signal input. Connected to the FSYNC terminal (94 pins) of the signal processing LSI (HD49226AFS: IC501). Pulse signal with a duty of 50 (%) with a cycle of 30 (ms) in SP mode, 60 (ms) at the time of LP mode, and 15 (ms) at the time of WSP mode.	PE0/$\overline{\text{EC0}}$
55	P OFF	I	Power OFF signal input terminal. Drops (↓) from "H" to "L" at the time of power OFF. Monitors the drop of the timer interrupt processing every 1.95 (ms) and starts the power OFF processing routine.	PE1/$\overline{\text{EC1}}$
56	xHEM	I	Destination information input terminal. "L" for overseas destination.	PE2/RMC
57	xTEST	I	Test mode input terminal. Test mode with "L".	PE3/$\overline{\text{NMI}}$
58	PADJ	O	Voltage output terminal for TACH adjustment. Used as PWM output terminal.	PE4/$\overline{\text{PWM}}$
59	xEMP	O	De-emphasis control output terminal. De-emphasis ON with "L".	PE5/T0
60	MONS	O	Monitor switching output terminal at the time of playback. This terminal is used to join recordings, but it is fixed to "H" for D−05.	PI0/INT0
61	CFG	I	Capstan FG input terminal. Monitors the rise edge of the timer interrupt processing every 1.95 (ms), used for capstan emergency checking.	PI1/INT1
62	HSWP	I	Head switching pulse input terminal. Used as interrupt terminal (INT2).	PI2/INT2
63	FGT	I	Take-up side reel FG input terminal. Used as interrupt terminal (INT3).	PI3/INT3
64	LDM ON	O	Cassette compartment loading motor control output terminal. ON/OFF control is executed for the cassette compartment loading motor. Loading motor ON with "H".	PI4
65	MLM CW	O	Mode motor, cassette compartment loading motor rotation direction control output terminal. Rotation direction control is executed for the mode motor of the D4 mechanism and the cassette compartment loading motor. Rotation in clockwise direction with "H".	PI5
66	MDM ON	O	Mode motor control output terminal. Execution of ON/OFF control for the D4 mechanism. Mode motor ON with "H".	PI6
67	LDSTART	I	Cassette compartment loading start detection SW input terminal. Loading start with "H".	PI7
68	xLDEND	I	Cassette compartment loading end detection SW input terminal. Loading completion with "L".	PG0
69	T LED	O	Tape top/end sensor LED control output terminal. Execution of ON/OFF control for the LED of the tape top/end sensor of the D4 mechanism. Flashing at a period of 3.9 (ms).	PG1
70	SOL ON	O	Brake solenoid control output terminal. Execution of ON/OFF control for the brake solenoid of the D4 mechanism. Brake ON with "H".	PG2

No.	Pin Name	I/O	Function	CPU
71	xDM ON	O	Drum motor control output terminal. Execution of ON/OFF control for the drum motor of the D4 mechanism. Drum motor ON with "L".	PG3
72	VDD	–	Positive power supply terminal. Connected to the 5 (V) line.	VDD
73	NC	O	Not used	NC
74	xCM ON	O	Capstan motor control output terminal. Execution of ON/OFF control for the capstan motor of the D4 mechanism. Capstan motor ON with "L".	PG4
75	CM CW	O	Capstan motor rotation direction control output terminal. Execution of rotation direction control for the capstan motor of the D4 mechanism. Rotation in clockwise direction (forward direction) with "H".	PG5
76	THIN SW	I	Thin (9 μm) tape detection SW input terminal. Connected to the tape thickness confirmation hole detection SW. "H" at the time of thin tape. (HOLE OPEN)	PG6
77	RECINH	I	Recording prohibition confirmation hole detection SW input terminal. Recording prohibition with "H".	PG7
78	xHALFIN	I	Cassette half detection SW input terminal. Cassette half present with "L".	PF0
79	ENC1	I	Mechanism encoder output BIT1 input terminal.	PF1
80	ENC2	I	Mechanism encoder output BIT2 input terminal.	PF2

PDG120A (IC1601 : DISPLAY A UNIT)

- **FL Control IC**
- Pin Function

No.	Pin Name	I/O	Function	CPU
1	S4	O	FL segment signal output terminal 4	S4/PG0
2	S5	O	FL segment signal output terminal 5	S5/PG1
3	S6	O	FL segment signal output terminal 6	S6/PG2
4	S7	O	FL segment signal output terminal 7	S7/PG3
5	S8	O	FL segment signal output terminal 8	S8
6	S9	O	FL segment signal output terminal 9	S9
7	S10	O	FL segment signal output terminal 10	S10
8	S11	O	FL segment signal output terminal 11	S11
9	S12	O	FL segment signal output terminal 12	S12
10	S13	O	FL segment signal output terminal 13	S13
11	S14	O	FL segment signal output terminal 14	S14
12	S15	O	FL segment signal output terminal 15	S15
13	NC	O	Not used	S16/T15
14	NC	O		S17/T14
15	NC	O		S18/T13
16	NC	O		S19/T12
17	T11	O	FL timing signal output terminal 11	S20/T11
18	T10	O	FL timing signal output terminal 10	S21/T10
19	T9	O	FL timing signal output terminal 9	S22/T9
20	T8	O	FL timing signal output terminal 8	S23/T8
21	T7	O	FL timing signal output terminal 7	T7
22	T6	O	FL timing signal output terminal 6	T6
23	T5	O	FL timing signal output terminal 5	T5
24	T4	O	FL timing signal output terminal 4	T4
25	T3	O	FL timing signal output terminal 3	T3
26	T2	O	FL timing signal output terminal 2	T2
27	T1	O	FL timing signal output terminal 1	T1
28	T0	O	FL timing signal output terminal 0	T0
29	xOPREQ	I	Input terminal for the communication request signal from the system controller. Interrupt terminal.	INT

No.	Pin Name	I/O	Function	CPU
30	XTAL	O	Ceramic resonator connection terminal for system clock oscillation. (Output)	XTAL
31	EXTAL	I	Ceramic resonator connection terminal for system clock oscillation. (Input) 4.19 (MHz) ceramic resonator connection to the 30 pin connector.	EXTAL
32	xRST	I/O	System reset terminal. "L" level active.	$\overline{\text{RST}}$
33	NC	–	Not used	NC
34	VDD	–	Positive power supply terminal. Connected to the 5 (V) line.	VDD
35	KEY0	I	Tact key input terminal 0. Used as AD0 (analog input).	AD0/PI0
36	KEY1	I	Tact key input terminal 1. Used as AD1 (analog input).	AD1/PI1
37	KEY2	I	Tact key input terminal 2. Used as AD2 (analog input).	AD2/PI2
38	SW0	I	Rotary switch input terminal 0. Used as AD3 (analog input).	AD3/PI3
39	SW1	I	Rotary switch input terminal 1. Used as AD4 (analog input).	AD4/PB0
40	KEY3	I	Tact key input terminal 3. Used as AD5 (analog input).	AD5/PB1
41	KEY4	I	Tact key input terminal 4. Used as AD6 (analog input).	AD6/PB2
42	NC	I	Not used	AD7/PB3
43	NC			NC
44	CCK	I	Serial data transmission clock input terminal. Used as SC terminal. Connected to the shift clock output terminal of system control. The serial clock period is 3.8 (μs) and the interval clock period is 61 (μs).	PX0/$\overline{\text{SC}}$
45	CDATAO	O	Serial data output terminal. Used as SO terminal. Connected to the system controller serial data input terminal.	PX1/SO
46	CDATAI	I	Serial data input terminal. Used as SI terminal. Connected to the system controller serial data output terminal.	PX2/SI
47	MCK	O	Memory communication shift clock output terminal.	PA0
48	MDA	I/O	Memory communication data I/O terminal.	PA1
49	OPACK	O	Output terminal for communication permission signals to system controller.	PA2
50	NC	I/O	Not used	PA3
51	NC	I/O		PF0
52	NC	I/O		PF1
53	NC	I/O		PF2
54	NC	I/O		PF3
55	NC	I/O		PE0
56	NC	I/O		PE1
57	NC	I/O		PE2

No.	Pin Name	I/O	Function	CPU
58	NC	I/O	Not used	PE3
59	NC	O		PY0
60	NC	O		PY1/$\overline{\text{PWM}}$
61	NC	I		PY2/WP
62	RMSIG	I	Remote control signal input terminal. Used as RMC terminal.	PY3/$\overline{\text{EC}}$/RMC
63	NC	I/O	Not used	PD0
64	NC	I/O		PD1
65	NC	I/O		PD2
66	NC	I/O		PD3
67	NC	I/O		PC0
68	PAUSE	O	PAUSE LED display output terminal.	PC1
69	REC	O	REC LED display output terminal.	PC2
70	PLAY	O	PLAY LED display output terminal.	PC3
71	Vss	–	GND terminal. Connected to GND.	Vss
72	NC		Not used	TX
73	NC			NC
74	NC	I		TEX
75	VREF	–	A/D converter reference voltage input terminal. Connected to the 5 (V) line.	VREF
76	VFDP	–	Negative power supply terminal for FL. Not connect	VFDP
77	S0	O	FL segment signal output terminal 0	S0/PH0
78	S1	O	FL segment signal output terminal 1	S1/PH1
79	S2	O	FL segment signal output terminal 2	S2/PH2
80	S3	O	FL segment signal output terminal 3	S3/PH3

1.6 ADJUSTMENTS

Adjustment Conditions

1. Clean the head and tape transit surfaces (tape guide, drum, capstan shaft, and pinch roller).
2. Before making adjustments, warm up the set for a few minutes.
3. Use an oscilloscope with a 10 : 1 probe.

● Test Tapes

Tracking tape : SDA−101 (TY−7251)
Level tape : SDA−102 (TY−7111)
Torque meter FWD : SDA−104 (TY−7131)
Blank tape : SDA−301
SDA−302
(TY−30B)
Error-rate adjustment tape : SDA−111 (SP)
SDA−112 (WSP)

Adjustment Items

Mechanical system

1. Back Tension Torque Adjustment
2. Tape Pass Confirmation
3. Tape Pass Adjustment

Electrical system

1. PLL Adjustment
2. TACH Adjustment
3. ATF Recording Current Adjustment
4. Error Rate Adjustment

SETTING THE TEST MODE

● 1.5 TP Test Mode

1. Short-circuit the connectors CN23−7 (XTEST) and CN23−1 (GNDA) of the MAIN unit (refer to Fig. 2 on page 1−19). At this time, "PGM" on the FL tube flashes.
2. Press the counter reset key (C−RESET). At this time, confirm that the counter display part of the FL tube becomes "TACH". (TACH adjustment mode)

● Test mode cancellation

Open the XTEST terminal to cancel this test mode.

● 2/3 waveform setting method

1. Enter into 1.5TP test mode.
2. Connect a stabilized power supply between CN23−6 (VOFT) and CN23−1 (GNDA) and apply +2.5 V.
3. Play back the tracking tape (SDA−101) and execute fine adjustment of the stabilized power supply (around +2.5 V) so that the level close to the center of the RF waveform (Ach) becomes a maximum.
4. Execute fine adjustment of the stabilized power supply voltage so that the level close to the center of the RF waveform (Ach) becomes about 2/3 of the level in item 3. (Around +2.0 V).

● Test Mode for Recording Current Adjustment

1. Short-circuit the connectors CN23−7 (XTEST) and CN23−1 (GNDA) of the MAIN unit. At this time, "PGM" on the FL tube flashes.
2. Press the counter mode key (C−MODE). At this time, confirm that the P−NO display part of the FL tube becomes "db".

● Test mode cancellation

Open the XTEST terminal to cancel this test mode.

Note:
At the time of exchange of the memory IC (IC1602), TACH adjustment must be executed after initialization of the memory IC in initialization mode.

● Initialization mode

1. Short-circuit the connectors CN23−7 (XTEST) and CN23−1 (GNDA) of the MAIN unit. At this time, "PGM" on the FL tube flashes.
2. Press the ID mode key (ID−MODE).

MECHANICAL SYSTEM ADJUSTMENT

1. Back Tension Torque Adjustment

- Purpose : To stabilize the tape's contact with the rotating drum.
- Symptoms of Improper Adjustment : Small torque ⇨ Tape transit is unstable.
  Large torque ⇨ Tape or head is damaged.

Measuring Device/Jig	Measuring Device Connection	DAT State	Part to be Adjusted
● Torque Meter FWD : SDA−104 (TW−7131)		● PLAY mode	● Spring hook part on the reel base

Adjustment Procedure

Preparation

- Mount the torque meter (SDA−104).

1. Press the PLAY key and confirm that the center of the back tension torque value on the torque meter FWD is between 6.5 to 9.5g • cm.
2. If the value is not within this standard, adjust positions A to C on the reel base spring hook part.

Adjustment Diagram

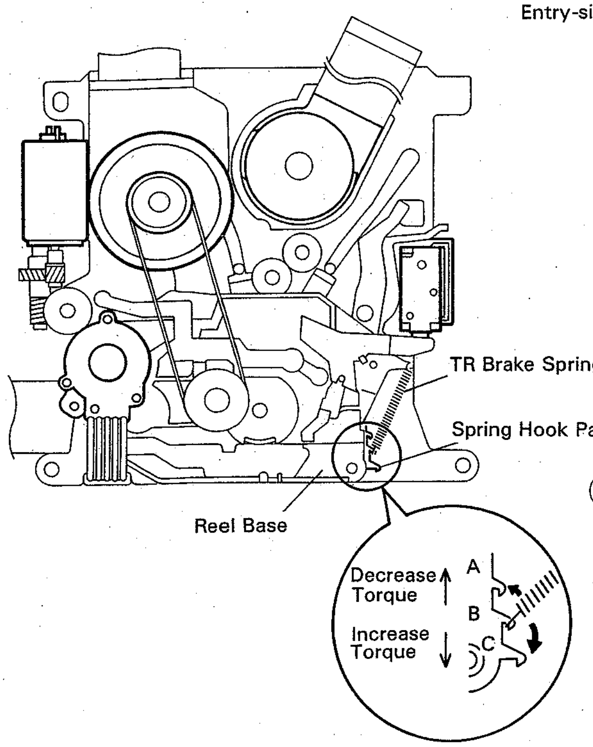

TR Brake Spring
Spring Hook Part
Reel Base
Decrease Torque
Increase Torque
A
B
C

Fig. 1−1

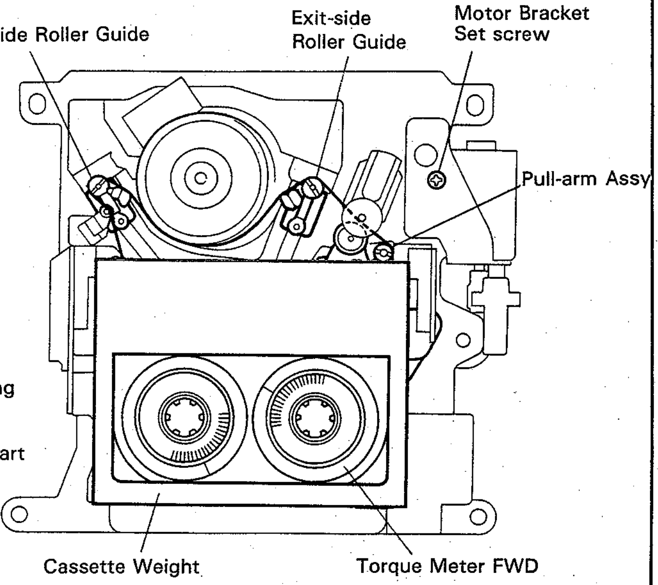

Entry-side Roller Guide
Exit-side Roller Guide
Motor Bracket Set screw
Pull-arm Assy
Cassette Weight
Torque Meter FWD

Fig. 1−2

2. Tape Pass Confirmation

- Purpose : To confirm that the tape is correctly aligned with the drum assembly lead. (Tape transit adjustment)
- Symptoms of Improper Adjustment : Sound is interrupted, noise is generated, or sound quality is poor.

Measuring Device/Jig	Measuring Device Connection	DAT State	Part to be Adjusted
● Oscilloscope ● Test Tape : Tracking/ SDA−101 (TY−7251)	● Oscilloscope MAIN unit interior : CH1 : Between ENV (CN23−3) and GND A (CN23−1) CH2 : Between HSWP (CN23−5) and GND A (CN23−1)	● PLAY mode (Test mode)	● Waveform check

Adjustment Procedure

Preparation

- Mount the tracking tape (SDA−101).
- After setting the 1.5 TP test mode, produce the 2/3 waveform and play the tape. (Refer to Page 1−17.)

1. Check the waveform at this time on the oscilloscope and make sure that the degree of flatness is at least 75%.
2. If the degree of flatness is less than 75%, perform the procedures described in "3. Tape Pass Adjustment" on Page 1−21.

- Degree of flatness = B/A × 100 [%] (refer to Photo 1−1 to photo 1−3)

Adjustment Diagram

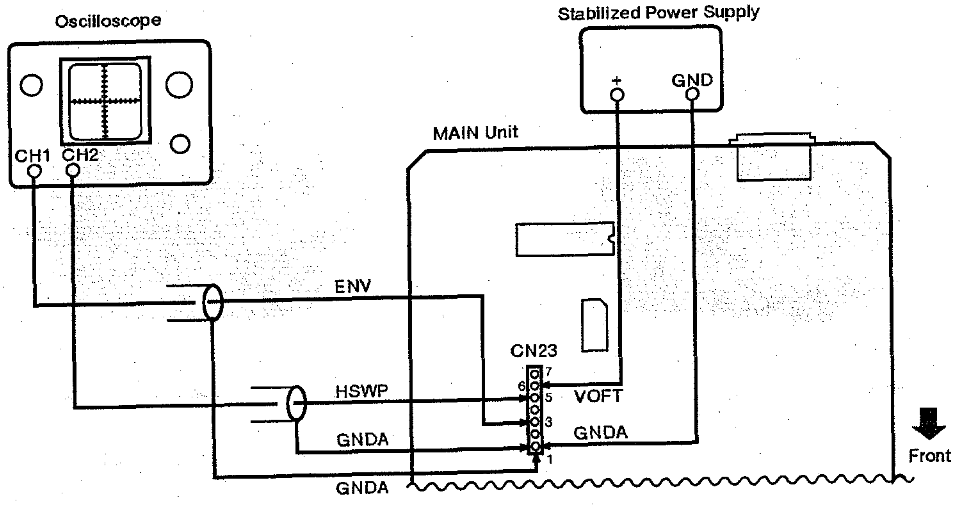


Fig. 2

Waveform

Oscilloscope Range : 50mV/div., 1ms/div.

Normal

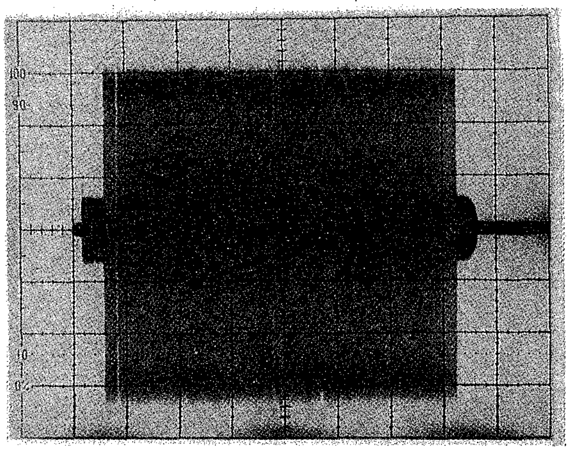


Photo 1 − 1

Fault on the Entry Side

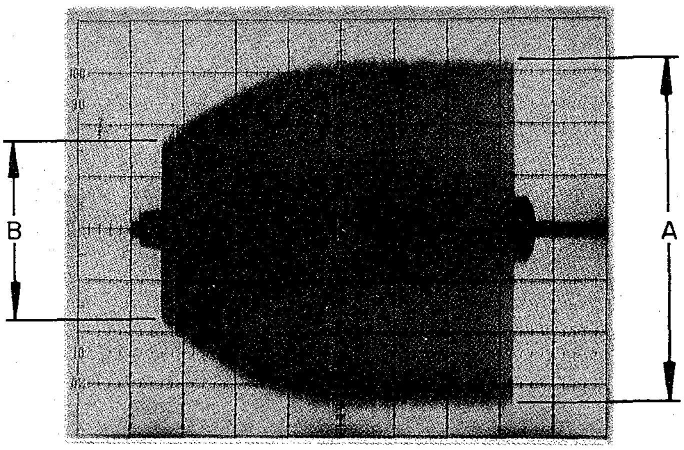


Photo 1 − 2

Fault on the Exit Side

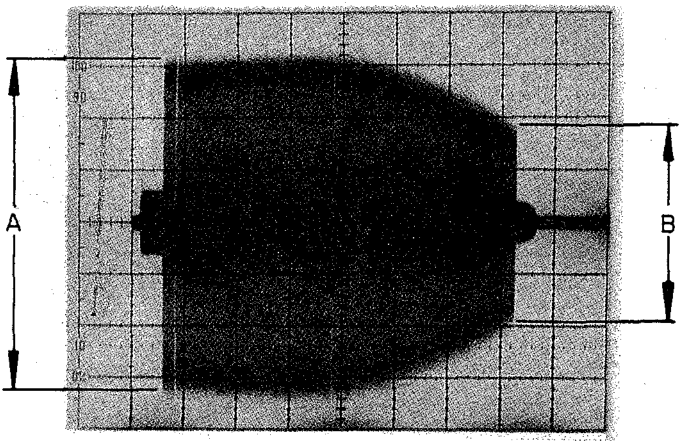


Photo 1 − 3

3−3. Fine Adjustment of Pull Guide

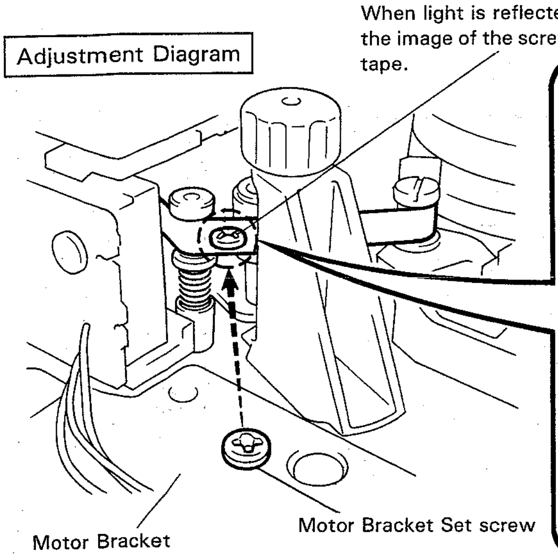
Preparation

- Refer to pages 1−5 and remove the DAT mechanism assembly from the cassette installation unit.
- Place the cassette weight onto a commercial 120 min. tape and set it into the mechanism.

Adjustment

1. Play the tape and set the CUE mode by holding down the FF/CUE key when the tape starts winding. Check for twisting of the tape between the pinch roller and the pull guide by observing the image of the motor bracket setscrew head reflected on the magnetic surface of the tape. The relationship between the reflected image of the screw head and the height of the pull-guide flange is shown in Fig. 3−3.
2. Slowly tighten the pull-guide flange, turning it 180 degrees from its rough-adjusted position, and confirm that the appearance of the reflected image continuously changes from (c) to (a) during this process.
3. Then, while loosening the pull-guide flange 180 degrees, confirm that the appearance of the reflected image continuously changes from (a) to (c).
4. Tighten the pull-guide flange until the top edge of the tape curls slightly and the screw image resembles the shape shown in (b), and then loosen the flange 90 degrees.
5. Set the REW mode by pressing and holding down the REW/REV key. Confirm that the tape does not curl at Points A and B in Fig. 3−4.
6. After confirming that the tape is not twisted at Point C in Fig. 3−5, check the tape for twisting or bulging at Point D. (Normal bulge : no more than 0.5mm)
7. Press the OPEN/CLOSE key and eject the tape. Replay the tape, and keeping the FF/CUE key pressed down, observe the reflected image of the screw head and confirm that it has the same appearance as that shown in (c).
8. Press and hold down the REW/REV key and confirm that curling and twisting at Points A to D are the same.
9. Apply a locking adhesive to the screw on top of the pull-guide flange and lock the screw.

Adjustment Diagram


When light is reflected off the screw, the image of the screw appears on the tape.
Motor Bracket
Motor Bracket Set screw

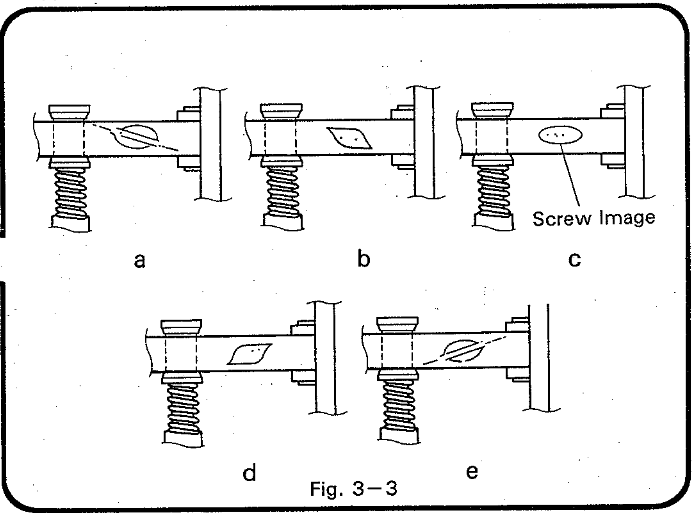

Screw Image
a
b
c
d
e

Fig. 3−3

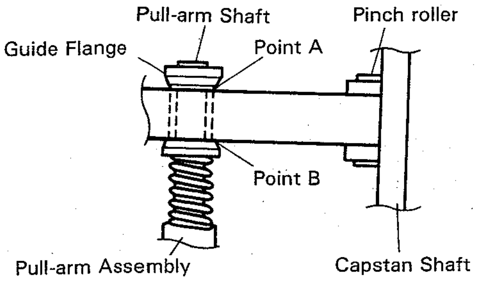

Pull-arm Shaft
Pinch roller
Guide Flange
Point A
Point B
Pull-arm Assembly
Capstan Shaft

Fig. 3−4

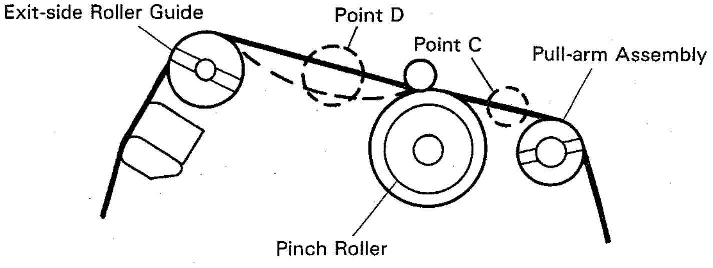

Exit-side Roller Guide
Point D
Point C
Pull-arm Assembly
Pinch Roller

Fig. 3−5

ELECTRICAL SYSTEM ADJUSTMENT

1. PLL Adjustment

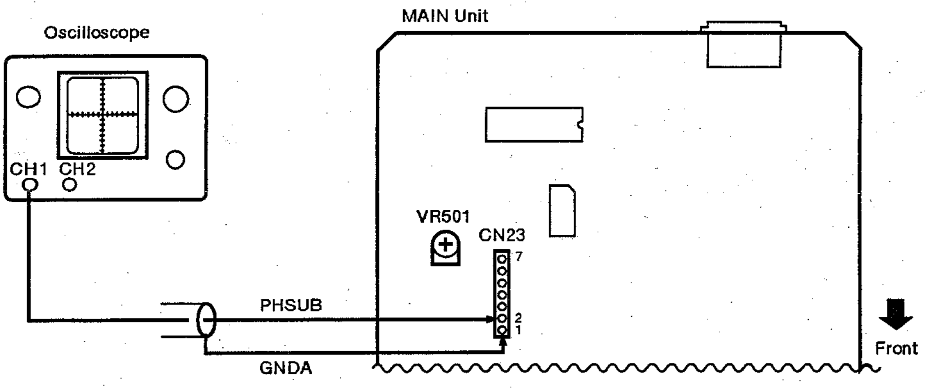
- Purpose : To correctly access digital signals stored in the tape.
- Symptoms of Improper Adjustment : Sound is intermittent, unit does not playback, noise is generated, or meter fails to oscillate.

Measuring Device/Jig	Measuring Device Connection	DAT State	Part to be Adjusted
● Oscilloscope ● Test Tape Blank Tape : SDA−301	● Oscilloscope MAIN unit interior : CH1 : Between PHSUB (CN23−2) and GND D (CN23−1)	● STOP mode	● MAIN unit VR501 (VCO RANGE ADJ.)

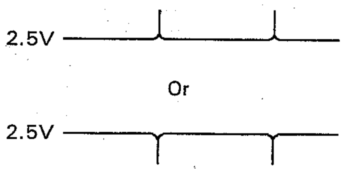
Adjustment Procedure

1. Insert the test tape.
2. Adjust the output voltage of the CN23−2 (PHSUB) to 2.5V. (At this time, if the beard-shaped pulses in the waveform are just slightly visible or disappear completely, adjust the voltage above or below 2.5V.)

Adjustment Diagram



Waveform



- If the beard-shaped pulses in the waveform are just slightly visible or disappear completely, adjust the voltage above or below 2.5V.

Fig. 4

2. TACH Adjustment

- Purpose : To match the recording position with the tape format.
- Symptoms of Improper Adjustment : Tapes recorded on other machines have intermittent sound or noise increases and the MUTE comes on. (Tapes recorded on this unit perform without problems.)

Measuring Device/Jig	Measuring Device Connection	DAT State	Part to be Adjusted
● Oscilloscope ● Test tape Tracking : SDA−101 (TY−7251)	● Oscilloscope MAIN unit interior : CH1 : Between ENV (CN23−3) and GND A (CN23−1) CH2 : Between HSWP (CN23−5) and GND A (CN23−1)	● PLAY mode (Test mode)	● MS key "+", "−"

Adjustment Procedure

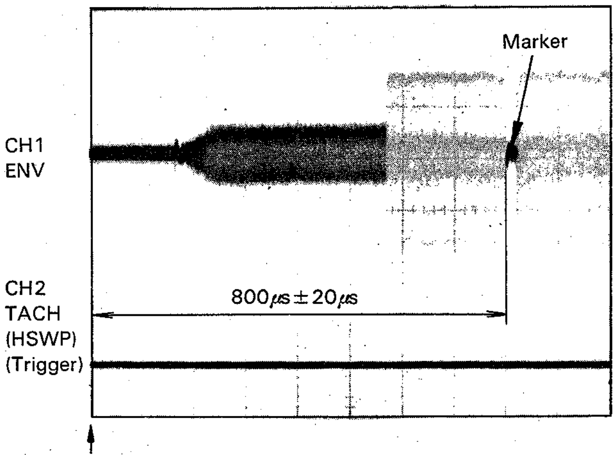
Preparation

- Set the 1.5 TP test mode. (Refer to Page 1−17.)

1. Press the MS keys "+" or "−" to adjust so that the RF waveform marker position becomes 800μs ± 20μs from the drop of the HSWP waveform.

Waveform

- Oscilloscope Range :
  CH1 : AC500mV/div., 0.1ms/div.
  CH2 : DC5V/div. (Trigger)



Drop of the HSWP waveform

Photo 3−1

Note

The TACH adjustment is adjustment by means of the microcomputer, where the adjustment data are stored in the memory, and as the adjusted data are stored in the memory at the time of test mode cancellation, do not switch off the power supply while in test mode.

Adjustment Diagram

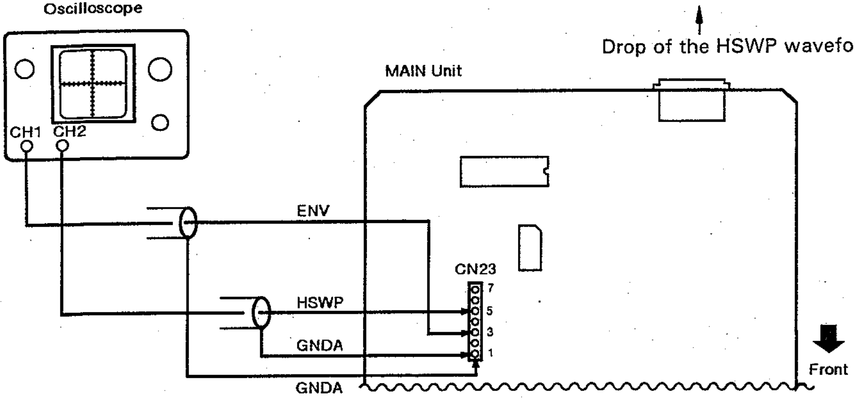


Fig. 5

3. ATF Recording Current Adjustment.

- Purpose : To obtain the ideal recording current value.
- Symptoms of Improper Adjustment : Sound is intermittent (tracking cannot be obtained) or noise is generated.

Measuring Device/Jig	Measuring Device Connection	DAT State	Part to be Adjusted
● Oscilloscope ● Test Tape Level : SDA−102 (TY−7111) Blank : SDA−302 (TY−30B) *NOTE :* *Use an unused portion of tape where RF signals have not been recorded.*	● Oscilloscope MAIN Unit interior : CH1 : Between PLT2 (CN23−4) and GND A (CN23−1) CH2 : Between HSWP (CN23−5) and GND A (CN23−1)	● PLAY and REC modes	● RF unit VR305 (A head) VR302 (B head)

Adjustment Procedure

Preparation

- Set the test mode for adjustment of recording current. (Refer to Page 1−17.)

1. Play the level-use test tape (SDA−102) and record the voltage value at Points (a) and (b) on the waveform. (Refer to Photo 4−1.)
2. Confirm that the blank tape has not been used or has an unused portion. Press the REC key and then the PAUSE key. Record the signal from the unit's built-in transmitter on the tape for 30 to 60 seconds.
3. Stop the recording and rewind the recorded portion of the tape. Confirm that the levels of the reproduced waveform are within $\pm{}^{25}_{20}$ % of levels (a) and (b) recorded according to the procedure described in Step 1. (Refer to Photo 4−2.)
4. When the values are outside the standard, slightly turn VR305 for A head or VR302 for B head, and record the signal again on an unused portion of tape. Confirm the levels as described in Step 3.
5. Repeat Steps 3 and 4 and make adjustments until the values are within the standard.

Adjustment Diagram

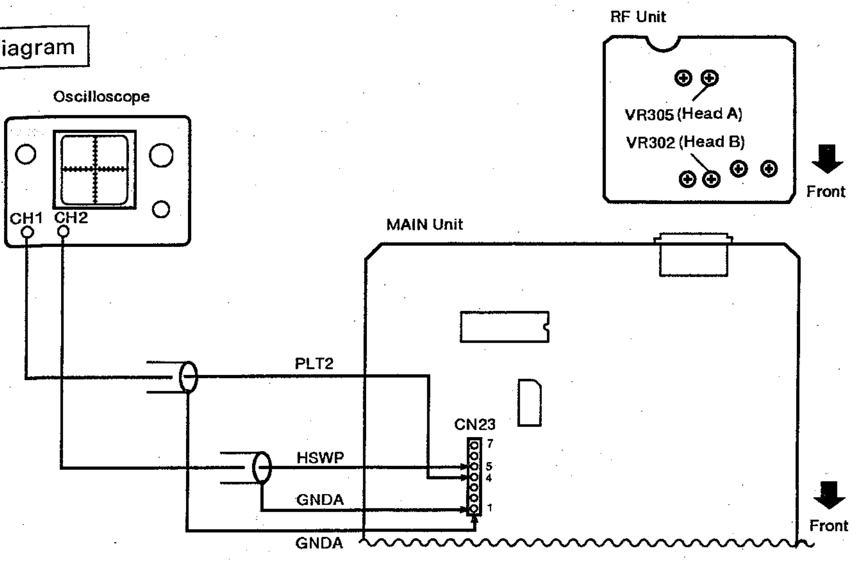


Fig. 6

Waveform [ ] : Reference

During Playback of Level Tape (SDA−102)

- Oscilloscope Range CH1 : 0.5V/div., 2.5ms/div.
  CH2 : 5V/div.

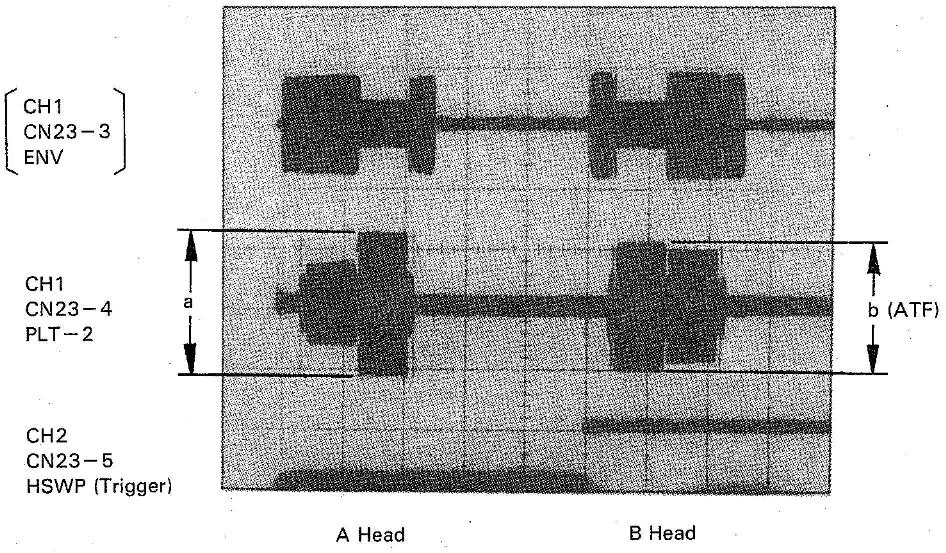


Photo 4−1

During Playback of Self-recorded Blank Tape

- Oscilloscope Range CH1 : 0.5V/div., 3ms/div. (PCM)
  [CH1 : 100mV/div., 3ms/div] (ATF)
  CH2 : 5V/div.

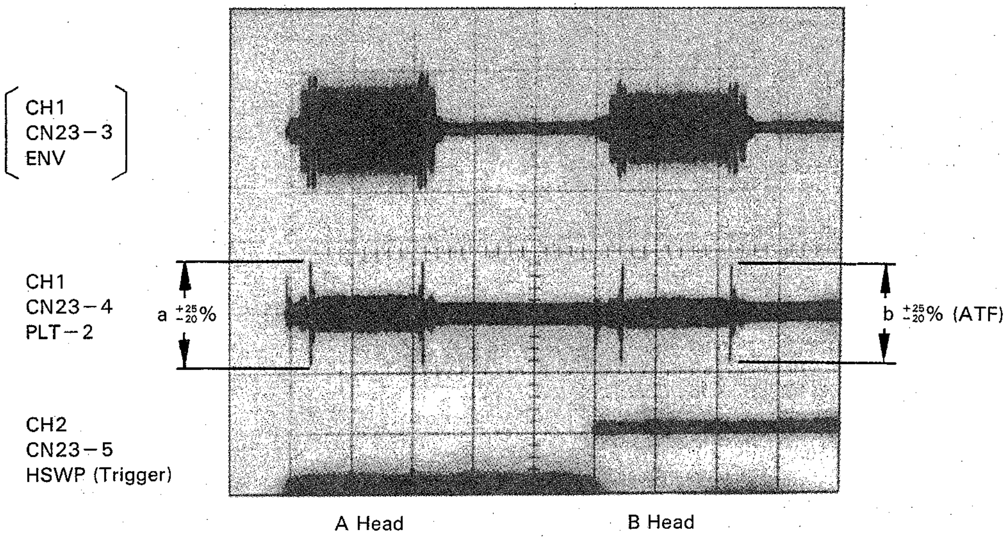


Photo 4−2

4. Error Rate Adjustment

- Purpose : To reproduce the correct data.
- Symptoms of Improper Adjustment : Units skips during playback, noise is generated, or meter does not oscillate.

Measuring Device/Jig	Measuring Device Connection	DAT State	Part to be Adjusted
● Test Tape Error Rate Adjustment Tape : SDA−111 (SP) : SDA−112 (WSP) ● Error Rate Counter [● Oscilloscope]	● Error rate counter MAIN unit interior Connector : CN24 ● Oscilloscope MAIN Unit interior : CH1 : Between FLAG (CN24−3) and GND D (CN24−1)	● PLAY mode	● RF unit VR303 (SP) VR304 (WSP)

Adjustment Procedure

Preparation

- Connect the error rate counter connector to CN24 inside the signal processing unit and set the error rate counter timer at 10sec.

1. Play the error rate adjustment tapes (SDA−111 and SDA−112) and make adjustments so that the error rate is as small as possible.

[If the error rate counter is not used]

1. Play the error rate adjustment tapes (SDA−111 and SDA−112) and make adjustments so that the oscilloscope waveform error flag is the same as that shown in Photo 5. (Adjust until the error rate is as small as possible.)

Adjustment Drawing

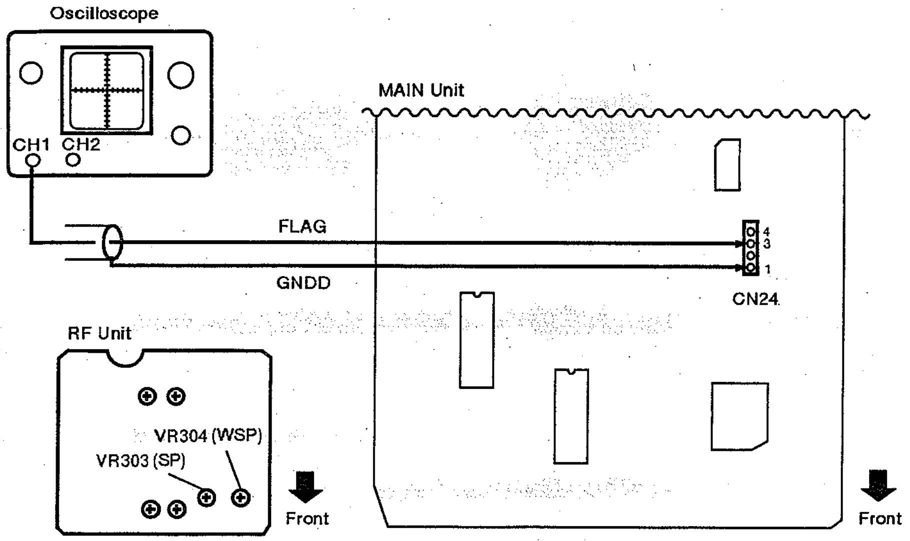


Fig. 7

Waveform

- Oscilloscope Range : 50mV/div., 1ms/div. [During SP]

When error rate is 1×10^{-1}

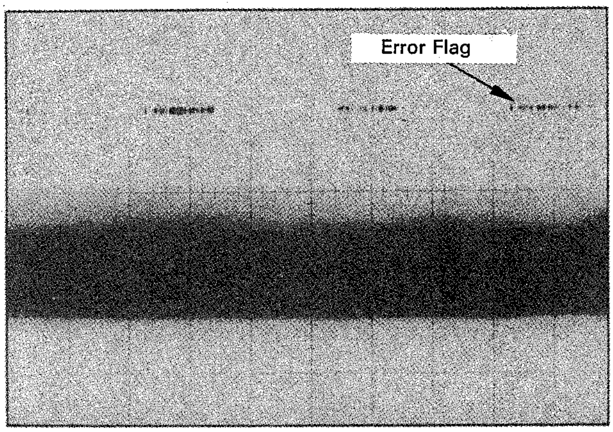


Photo 5－1

When error rate is 2×10^{-2}

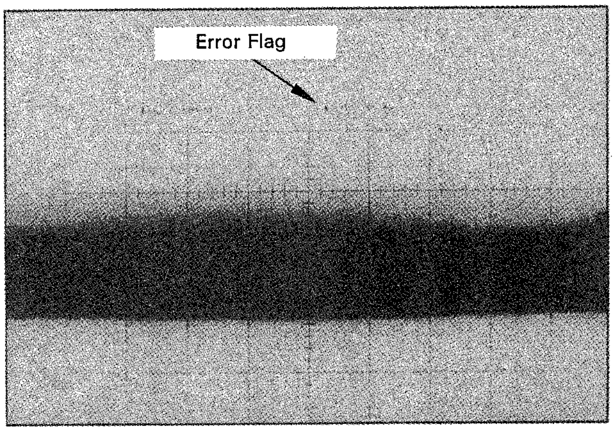


Photo 5－2

When error rate is 5×10^{-4}

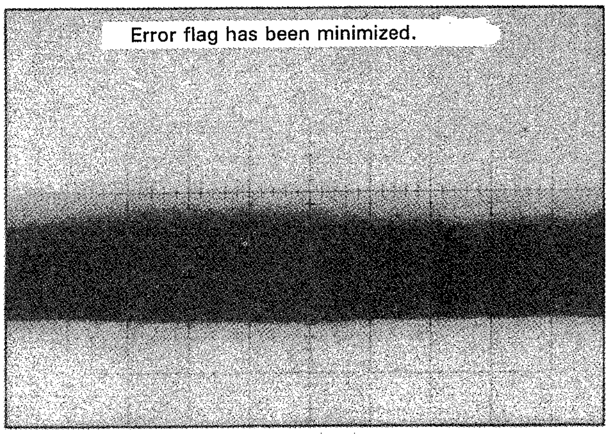


Photo 5－3

1.7 PARTS LIST FOR PACKING AND EXPLODED VIEWS

NOTES :

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

1. PACKING

Mark	No.	Description	Parts No.
	1	PACKING CASE	RHG1608
	2	PAD (F)	RHA1145
	3	PAD (R)	RHA1146
	4	OPERATING INSTRUCTIONS (English/French/German/Italian)	RRE1113
	5	REMOTE CONTROL UNIT	RPX1075
	6	....	
NSP	7	BATTERIES (R03, AAA)	VEM−022
	8	....	
	9	BATTERY COVER	PZN1010
	10	SHEET	RHX1007
	11	CONNECTION CORD ASSY	RDE1036

2. EXTERIOR

Mark	No.	Description	Parts No.
	1	MAIN UNIT	RWZ3493
NSP	2	HEADPHONE UNIT	RWZ3497
	3	POWER SW UNIT	RWZ3501
	4	RF ENV UNIT	RWZ3494
	5	....	
NSP	6	VR UNIT	RWZ3498
	7	DISPLAY A UNIT	RWZ3495
	8	DISPLAY B UNIT	RWZ3496
	9	POWER UNIT	RWZ3499
	10	TRANS UNIT	RWZ3500
⚠	11	FUSE (T2.5AL250V, FU2)	REK1026
⚠	12	FUSE (T1.6AL250V, FU3)	REK1024
	13	CONNECTOR ASSY (5P)	RKP1703
NSP	14	DAT MECHA ASSY	EXK2507
⚠	15	STRAIN RELIEF	CM−22B
⚠	16	AC POWER CORD HE	PDG1003
⚠	17	FUSE (T2.5AH250V, FU1)	REK1093
⚠	18	POWER TRANSFORMER (T1) (AC220−230V/230−240V)	RTT1274
	19	SPRING	RBH1397
	20	SCREW	RBA1099
NSP	21	SPACER	REB1124
NSP	22	CUSHION R	REB1142
	23	CUSHION	REB1168
NSP	24	MAIN CHASSIS	RNB1102
NSP	25	MECHA STAY	RNC1073
NSP	26	PCB BASE	RNE1221
	27	HP HOLDER	RNE1776
	28	CORD CLAMPER	RNH−184
	29	PANEL STAY	RNT1199
	30	....	
	31	INSULATOR	PNW1912
	32	VR KNOB	RAC1902
	33	ROTARY KNOB	RAC1903
	34	POWER BUTTON	RAC1904
	35	FUNCTION KNOB	RAC1921
	36	....	
	37	FL LENS	RAH2541
	38	UNDER PANEL	RAH2526
	39	FRONT PANEL	RAH2527
	40	DOOR STABILIZER	REB1264
	41	BONNET ASSY	REA1131
	42	REAR PANEL	RNA1865
	43	LED LENS 1	RNK2066
	44	DOOR ESCUTCHEON	RNK2084
	45	SENSOR LENS	RNK2085

Mark	No.	Description	Parts No.
	46	UNDER MOLD	RNK2144
NSP	47	CAUTION SEAL	RRW1079
	48	NAME PLATE	VAM1032
	49	SCREW	BBT30P060FCC
	50	SCREW	BBT30P080FCC
	51	SCREW	BBT30P100FZK
	52	SCREW	BBZ26P080FZK
	53	SCREW	IBZ30P060FCC
	54	…………………	
	55	SCREW	FBT40P080FZK
	56	WASHER	WH40FUC
NSP	57	CASSETTE INSTALLATION UNIT	RXA1647
	58	…………………	
NSP	59	EARTH PLATE	VNE1164
NSP	60	EARTH LEAD UNIT	PDF1150
	61	BINDER	ZCA−SKB90BK
	62	LENS L	RNK2067
	63	CUSHION (21×2×10)	REB1276
	64	CUSHION (9.5×6.4×10)	REB1277
	65	SPACER L	REB1278
	66	EARTH HOLDER	RNE1835
	67	EARTH PLATE	RNE1836
	68	COPPER FOIL TAPE (L)	RNE1837
	69	COPPER FOIL TAPE (R)	RNE1838
	70	NUT	RBN−006

3. CASSETTE INSTALLATION UNIT

Mark	No.	Description	Parts No.
	1	MOTOR PULLEY	PNW1634
	2	SPRING	RBH1279
	3	HALF DAMPER	REB1033
	4	BELT	REB1140
	5	GEAR STOPPER	RNE1394
	6	CONTAINER PLATE	RNE1395
	7	GEAR	RNK1272
	8	TRAY	RNK2122
	9	FLAP	RNK1649
	10	CONTAINER	RNK1650
	11	MAIN RACK PLATE L	RNK1653
	12	…………………	
	13	GEAR	RNK1658
	14	GEAR A	RNK1659
	15	PULLEY GEAR	RNK1660
	16	COLLAR	RNK1661
	17	MAIN RACK PLATE R	RNK1664
	18	HALF HOLDER	RNK1711
	19	SIDE PLATE L ASSY	RXA1356
	20	SIDE PLATE R ASSY	RXA1357
	21	PUSH SWITCH (S201, S202)	RSF1008
	22	SCREW	BBZ20P040FMC
	23	SCREW	BBZ20P060FZK
	24	SCREW	BBZ20P080FMC
	25	SCREW	BBZ26P060FMC
	26	SCREW	BMZ30P040FMC
	27	SCREW	PBA1035
	28	WASHER	WT21D050D025
	29	WASHER	WT26D047D050
	30	…………………	
	31	SCREW	PBA1002
	32	SPRING	RBH1125
	33	LOADING MOTOR	VXM1034
	34	…………………	
	35	CORD CLAMPER	RNH−184
	36	BINDER	Z09−056
NSP	101	SPRING	RBK1035
NSP	102	SPRING (TRAY)	RBK1036
NSP	103	SHAFT	RLA1152
NSP	104	TOP PLATE	RNE1396
NSP	105	REAR STAY	RNE1397
NSP	106	CONNECTOR ASSY 6P	RKP1433
	107	…………………	
NSP	108	TAPE	PNM1017
NSP	109	DAT MECHA ASSY	EXK2507
NSP	110	EARTH LEAD UNIT	XDF−506

4. DAT MECHA ASSY

Mark	No.	Description	Parts No.
	1	CLAMPER	HEF−102
	2	SWITCH (S102)	ESG9001
NSP	3	CONNECTOR (J8)	EDF9002
	4	SWITCH (S101)	ESG1001
	5	ENCODER ASSY	ESX1001
	6	POWER MOTOR	CXM1020
	7	SOLENOID	EXP1007
	8	PHOTO REFLECTOR (Q101, Q102) (REEL SENSOR)	GP2S24C
	9	PHOTO REFLECTOR ASSY (Q103) (END SENSOR)	EXX1023
	10	PHOTO REFLECTOR ASSY (Q104) (TOP SENSOR)	EXX1022
	11	RESISTOR (R101)	RD1/4PM431J
	12	DRUM ASSY	EXH9006
	13	BRACKET L ASSY	EXA1117
	14	PINCH ARM ASSY	EXA1118
	15	PINCH DRIVE ARM ASSY	EXA1119
	16	TR ARM ASSY	EXA1122
	17	DRIVE GEAR ASSY	EXA1123
	18	SWING ARM ASSY	EXA1124
	19	REEL BASE ASSY	EXA1125
	20	ROLLER GUIDE	EXA1129
	21	TR ARM BRACKET ASSY	EXA1184
	22	TR BAND ASSY	EXA1185
	23	SLIDER PLATE	ENE1006
	24	SENSOR BRACKET R	ENV1236
	25	STABILIZER	ENV1192
	26	TR LEVER	ENV1194
	27	TR BRAKE	ENV1195
	28	PULL ARM	ENV1197
	29	REEL GEAR	ENV1251
	30	REEL HUB	ENV1252
	31	IDLER GEAR	ENV1253
	32	CLUTCH DRUM	ENV1254
	33	PULLEY GEAR	ENV1255
	34	CHANGE ARM	ENV1256
	35	BRAKE LEVER	ENV1257
	36	BRAKE PLATE	ENV1258
	37	CHANGE LEVER	ENV1259
	38	REV BRAKE	ENV1260
	39	MOTOR GEAR	ENV1231
	40	WORM GEAR	ENV1232
	41	WORM WHEEL	ENV1233
	42	DRIVE GEAR	ENV1234
	43	CAM	ENV1235
	44	INTERVAL GEAR	ENV1238
	45	MODE PLATE	ENV1239
	46	HARD BRAKE	ENV1240
	47	DRIVE ARM	ENV1241
	48	THREADING GEAR	ENV1242
	49	THREADING ARM L	ENV1243
	50	THREADING ARM R	ENV1244
	51	THREADING LINK L	ENV1245
	52	THREADING LINK R	ENV1246
	53	SLIDER L	ENV1247
	54	SLIDER R	ENV1248
	55	PINCH ROLLER	ENT1016
	56	BELT	ENT1017
	57	PULL GUIDE FLANGE	ELA2025
	58	TAPE GUIDE	ELA2022
	59	EARTH SPRING	EBL1004
	60	REEL WASHER	EBF1014
	61	SENSOR SHEET	EEF1001
	62	BRAKE FELT	ENM1019
	63	DAMPER	ENT1021
	64	TAPE GUIDE	ENV1282
	65	BRAKE SHOE	ENT1022
	66	CAPSTAN DD UNIT	EXH9002
	67	PINCH-ARM SPRING	EBH1236
	68	TR ARM SPRING	EBH1237
	69	PULL-GUIDE SPRING	EBH1222
	70	SPRING	EBH1223
	71	TR BRAKE SPRING	EBH1224
	72	IDLER GEAR SPRING	EBH1226
	73	REEL HUB SPRING	EBH1227
	74	BRAKE PLATE SPRING	EBH1228
	75	BRAKE LEVER SPRING	EBH1229
	76	REV BRAKE SPRING	EBH1382
	77	CHANGE ARM SPRING	EBH1231
	78	DRIVE ARM SPRING	EBH1232
	79	HARD BRAKE SPRING	EBH1233
	80	THREADING ARM SPRING (L)	EBH1238
	81	THREADING ARM SPRING (R)	EBH1239
	82	SCREW	BBZ20P060FZK
	83	SCREW	BMZ20P040FMC
	84	SCREW	PMS20P025FMC
	85	SCREW	JGZ20P030FMC
	86	WASHER	WT16D040D050
	87	WASHER	WT16D032D025
	88	WASHER	WT10D035D025
	89	WASHER	WA16D032D025
	90	WASHER	WA16D032D013
	91	WASHER	WA20D040D050
	92	SCREW	EBA1025
	93	WASHER	EBE1002
	94	RF UNIT	EWF9001
NSP	101	JUMPER WIRE 5P (J101)	EDD1004
NSP	102	CONNECTOR ASSY 5P (J6)	EDE1011
NSP	103	LEAD CARD 13P (J5)	EDD1006
NSP	104	REEL SENSOR BOARD	ENP1027
NSP	105	CHASSIS ASSY	EXA1183
NSP	106	MOTOR BRACKET ASSY	EXA1130
	107	DRIVE LEVER	ENR1014
NSP	108	SHIELD CASE	RNE1566

1.8 PCB PARTS LIST

NOTES :

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex. 1 *When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

560Ω → 56 × 10¹ → 561 ························ *RD1/8PM* $\boxed{5}\boxed{6}\boxed{1}$ *J*
47kΩ → 47 × 10³ → 473 ························ *RD1/4PS* $\boxed{4}\boxed{7}\boxed{3}$ *J*
0.5Ω → 0R5 ·· *RN2H* $\boxed{0}\boxed{R}\boxed{5}$ *K*
1Ω → 010 ·· *RS1P* $\boxed{0}\boxed{1}\boxed{0}$ *K*

Ex. 2 *When there are 3 effective digits (such as in high precision metal film resistors).*

5.62kΩ → 562 × 10¹ → 5621 ················· *RM1/4PC* $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ *F*

LIST OF ASSEMBLIES

Mark	No.	Description	Parts No.
NSP		MOTHER UNIT	RWM1799
		├—MAIN UNIT	RWZ3493
		└—RF ENV UNIT	RWZ3494
NSP		SUB UNIT	RWM1800
		├—DISPLAY A UNIT	RWZ3495
		├—DISPLAY B UNIT	RWZ3496
NSP		├—HEADPHONE UNIT	RWZ3497
NSP		├—VR UNIT	RWZ3498
		├—POWER UNIT	RWZ3499
		├—TRANS UNIT	RWZ3500
		└—POWER SW UNIT	RWZ3501
NSP		DAT MECHA ASSY	EXK2507
		└—RF UNIT	EWF9001

MAIN UNIT

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC902		AK5340A−VS
	IC501		HD49226AFS
	IC601		HD49228FS
	IC504		HD49229
	IC605, IC606		LB1687
	IC505		M51957AL
	IC502 (MS62256CLL−10FC)		GGC1029
	IC603		NJM2902M
	IC602		NJM2904M
	IC701, IC801		NJM4565D−D
	IC702, IC802		NJM5532DD
	IC903		PD2029A (S)
	IC503		PDG119A
	IC607		TA7288P
	IC604		TC4053BF
	IC508		TC74HC08AF
	IC904		TC74HC10AF
	IC906		TC74HC74AF
	IC507, IC509, IC905		TC74HCU04AF
	Q502, Q607		2SA1037K
	Q503−Q505, Q603−Q606, Q609		2SC2412K
	Q612		2SC2412K
	Q608		2SC3246
	Q705, Q805		2SC3326
	Q704, Q804		2SD2114K
	Q501, Q508, Q509, Q601, Q602		DTA114EK
	Q904		DTA114EK
	Q610, Q611, Q613−Q615		DTC114EK
	Q901−Q903		DTC114EK
	D605, D606, D901, D902		1SR35−100AVL
	D502, D506, D601, D603		DA119
	D701, D801		DAN202K
	D503−D505, D702, D802		DAP202K
	D501		FC63M−4/5
	D604		MTZJ2.0AX

COILS AND FILTERS

Mark	No.	Description	Parts No.
	F901, F902		DTF1064
	L901−L903, L905		LFA010J
	L515		LFA151J
	L501		LFA1R5J
	L510		LFA3R3J
	L505, L507−L509, L512, L514		RTF1171
	L601		RTF1171

CAPACITORS

Mark	No.	Description	Parts No.
	C560		CCSQCH030C50
	C712, C713, C812, C813		CCSQCH050C50
	C557		CCSQCH060D50
	C556		CCSQCH080D50
	C543, C550, C925, C926		CCSQCH100D50
	C541		CCSQCH101J50
	C702, C802		CCSQCH121J50
	C927, C928		CCSQCH200J50
	C542		CCSQCH220J50
	C634		CCSQCH221J50
	C711, C811		CCSQCH390J50
	C604, C605		CCSQCH470J50
	C506		CCSQCH560J50
	C715, C815		CCSQSL561J50
	C654		CEANP010M50
	C639		CEANP3R3M50
	C653		CEANP4R7M50
	C661−C663, C665, C668		CEAS010M50
	C641, C707, C807, C904, C908		CEAS100M50
	C911		CEAS101M16
	C708, C709, C718, C719		CEAS220M50
	C808, C809, C818, C819		CEAS220M50
	C502, C503		CEAS331M16
	C509, C524, C529, C533, C537		CEAS470M16
	C539, C544, C549, C561, C608		CEAS470M16

Mark	No. Description	Parts No.
	C617, C621, C625, C630, C633	CEAS470M16
	C635, C636, C669, C919, C921	CEAS470M16
	C923	CEAS470M16
	C511, C657, C906	CEAS4R7M50
	C565	CEASR33M50
	C686	CEASR47M50
	C701, C703, C704, C716, C801	CENA220M50
	C803, C804, C816	CENA220M50
	C678	CFTXA332J50
	C640, C660, C667	CKSQYB102K50
	C652	CKSQYB123K50
	C646	CKSQYB153K50
	C551, C620, C656, C659	CKSQYB222K50
	C559	CKSQYB223K50
	C552, C642, C651, C714, C814	CKSQYB472K50
	C655, C720, C820	CKSQYB683K25
	C705, C805	CKSQYB821K50
	C505, C507, C508, C535, C536	CKSQYF103Z50
	C553, C555, C558, C601, C606	CKSQYF103Z50
	C614−C616, C619, C627−C629	CKSQYF103Z50
	C632, C643, C664, C666, C903	CKSQYF103Z50
	C920, C922, C924	CKSQYF103Z50
	C501, C512, C546, C554, C563	CKSQYF104Z25
	C647, C706, C710, C806, C810	CKSQYF104Z25
	C905, C907, C909, C910	CKSQYF104Z25
	C912, C913, C915−C917, C929	CKSQYF104Z25
	C918	CKSQYF104Z50
	C510, C525, C528, C532, C538	CKSQYF473Z50
	C540, C545, C547, C548, C562	CKSQYF473Z50
	C564, C566, C567, C602, C603	CKSQYF473Z50
	C607, C609−C611, C618	CKSQYF473Z50
	C622−C624, C631, C637, C638	CKSQYF473Z50
	C644, C645, C648−C650, C658	CKSQYF473Z50
	C731, C732, C831, C832	CKSQYF473Z50

RESISTORS

	VR501 (47K)	RCP1047
⚠	R638 (1Ω, 1/2W)	RCN1059
	R631 (10K, 1W)	RCX1048
	R716, R717, R816, R817	RN1/10SE104D
⚠	R646, R653	RS1/2LMFR47J
	Other Resistors	RS1/10S□□□J

OTHERS

	CN5	1−177644−3
	CN3, CN4	1−177644−5
	CN15	173981−5
	CN10, CN11, CN25	52147−0510
	CN14	52147−0610
	CN12	52147−0810
	CN8	B2B−PH−K
	CN24	B4B−PH−K
	CN6	B5B−PH−K
	CN7	B6B−PH−K
	JA901	RKB1034
	X902 (22.5792MHZ)	RSS1035
	X501 (37.632MHZ)	RSS1041
	X502 (8.389MHZ)	RSS1042
	X901 (24.5760MHZ)	RSS1043
	CN19	TUC−P08P−B1
	PCB BINDER	VEF1040

Mark	No. Description	Parts No.

RF ENV UNIT

SEMICONDUCTORS

	Q1401, Q1402	2SC2412K

COILS AND FILTERS

	L1404, L1405	LFA331J
	L1401, L1403	LFA471J
	L1402	LFA680J

CAPACITORS

	C1406, C1408	CCSQCH560J50
	C1407	CCSQSL331J50
	C1401, C1405	CCSQSL471J50
	C1410, C1412	CCSQSL561J50
	C1404	CEAS4R7M50
	C1403	CKSQYB102K50
	C1402, C1409, C1411	CKSQYB222K50

RESISTORS

	All Resistors	RS1/10S□□□J

OTHERS

	CN20	TUC−P08X−B1

DISPLAY A UNIT

SEMICONDUCTORS

	IC1602	AT24C01−10PC
	IC1601	PDG120A

SWITCHES AND RELAYS

	S1601, S1612	RSB1011
	S1602−S1605, S1607, S1608	RSG1039

CAPACITORS

	C1605	CEAL220M16
	C1601, C1603	CEAL470M16
	C1602, C1604	CGCYF473Z25
	C1606	CKCYF103Z50

RESISTORS

	R1615 (47K)	RCX1045
	R1611−R1614 (47K)	RCX1047
	Other Resistors	RD1/6PM□□□J

OTHERS

	REMOTE SENSOR UNIT	HC−177
	V1601	RAW1135
	X1601 (4.19MHZ)	VSS1014

DISPLAY B UNIT

SEMICONDUCTORS

	D1501	SEL6410E
	D1503	GL3HY43
	D1502	SEL6C10R

SWITCHES AND RELAYS

	S1501−S1513	RSG1030

RESISTORS

	All Resistors	RD1/6PM□□□J

HEADPHONE UNIT

SEMICONDUCTORS

Mark	No. Description	Parts No.
	IC1001	M5216L

COILS AND FILTERS

Mark	No. Description	Parts No.
	L1001, L1003−L1005	RTF1167
	L1002	RTF1216

CAPACITORS

Mark	No. Description	Parts No.
	C1007, C1008	CCCCH470J50
	C1001, C1005, C1006	CEAS330M35
	C1002, C1003	CKCYF103Z50

RESISTORS

Mark	No. Description	Parts No.
	VR1001 (20KB)	PCS1002
⚠	R1007, R1008 (22Ω)	VCN1029
	Other Resistors	RD1/6PM□□□J

OTHERS

Mark	No. Description	Parts No.
	CN13	173981−5
	JA1001	RKN1023

VR UNIT

RESISTORS

Mark	No. Description	Parts No.
	VR1101 (50KA)	RCV1104
	VR1102 (50KMN)	RCV1105
	Other Resistors	RD1/6PM□□□J

OTHERS

Mark	No. Description	Parts No.
	J14	RDD1302

POWER UNIT

SEMICONDUCTORS

Mark	No. Description	Parts No.
⚠	IC406, IC407	ICP−N20
⚠	IC402	NJM7805A
⚠	IC404	NJM7805FA
⚠	IC401	NJM7809A
⚠	IC405	NJM7905FA
	IC1802	TC74HC00AP
	IC1801	TC74HCU04AP
⚠	Q401	2SA1283
	Q1801	XDC114ES
⚠	D402, D403, D415−D417	11ES2
	D1801	1SR35−100A
	D406, D407	1SS254
⚠	D408−D411	EL1Z−LFG1
⚠	D404	MTZJ33A
⚠	D405	RD15FB
⚠	D401	S2VB20

COILS AND FILTERS

Mark	No. Description	Parts No.
	L1801	LFA151J
	L1805	PTL1003
	L1804, L1807	RTF1164
	L1803, L1806, L403	RTF1167
	L1802	RTF1171

CAPACITORS

Mark	No. Description	Parts No.
	C1809, C1816	CCCCH220J50
	C1810	CCCCH470J50
	C407	CEAS102M50
	C403	CEAS221M50
	C406	CEAS222M25
	C1808, C1813	CEAS330M35
	C1802, C1804	CEAS470M16
	C404	CEAS470M35
	C408, C409	CEAS471M10
	C411	CEAS472M16
	C405	CEAS4R7M50
	C1801, C1811, C1815, C412	CGCYF104Z25
	C1807, C1812, C413	CKCYF103Z50
	C1803, C1805, C1814	CKCYF473Z50
	C414	CQMA103J50
	C1806	OCG1014
	C401 (6800UF/25V)	RCH1033

RESISTORS

Mark	No. Description	Parts No.
⚠	R401 (4.7Ω)	DCN1001
⚠	R402 (47Ω)	DCN1006
⚠	R403	RD1/2PMF222J
	Other Resistors	RD1/6PM□□□J

OTHERS

Mark	No. Description	Parts No.
	CN16	52147−0710
	JA1802	RKB1031
	FUSE HOLDER	RKR1002
	JA1801	TORX178A
	EARTH PLATE	VNF−091

TRANS UNIT

COILS AND FILTERS

Mark	No. Description	Parts No.
	L1301	RTF1167

CAPACITORS

Mark	No. Description	Parts No.
⚠	C1301, C1302, C1306, C1307	CKCYF103Z50

POWER SW UNIT

COILS AND FILTERS

Mark	No. Description	Parts No.
⚠	L1201	VTL−262

SWITCHES AND RELAYS

Mark	No. Description	Parts No.
⚠	S1201	RSA1001

CAPACITORS

Mark	No. Description	Parts No.
⚠	C1201−C1203 (10000PF)	RCG−009

OTHERS

Mark	No. Description	Parts No.
⚠	CAPACITOR COVER	REC−150
	TERMINAL	RKC−061
	FUSE HOLDER	RKR1002

RF UNIT

SEMICONDUCTORS

Mark	No. Description	Parts No.
	IC301	HA12154MA
	Q303, Q304	2SD1328
	Q301, Q302	2SK932

COILS AND FILTERS

Mark	No. Description	Parts No.
	L301	ETF9001

CAPACITORS

Mark	No. Description	Parts No.
	C320	CCSQCH101J50
	C327	CCSQCH121J50
	C329	CCSQCH150J50
	C328	CCSQCH271J50
	C330	CCSQCH330J50

Mark	No.	Description	Parts No.
	C323		CCSQCH391J50
	C319		CCSQCH471J50
	C324		CCSQCH820J50
	C335, C337		CEV101M6
	C309		CEV220M6
	C333		CEV470M6
	C339		CEV4R7M25
	C301−C304, C307, C308		CKSQYB103K50
	C310−C318, C321, C322		CKSQYB103K50
	C325, C326, C331, C332, C340		CKSQYB103K50
	C334, C336, C338, C341		CKSQYB104K25
	C305, C306		CKSQYB472K50
	C342	(22UF/6.3V)	ECX9001
RESISTORS			
	VR303, VR304		ECP9001
	VR301, VR306		ECP9002
	VR302, VR305		ECP9003
	Other Resistors		RS1/10S□□□J
OTHERS			
	CN1		EKS9001
	CN2		EKS9002

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The Art of Entertainment

Service Manual

ORDER NO.
RRZ1201

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DIGITAL AUDIO TAPE DECK

D-05

CHAPTER 2

CONTENTS

CHAPTER 2

2.1 PACKING AND EXPLODED VIEWS ··· 2–3
2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS ·········· 2–9
2.3 BLOCK DIAGRAM ·········· 2–31

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
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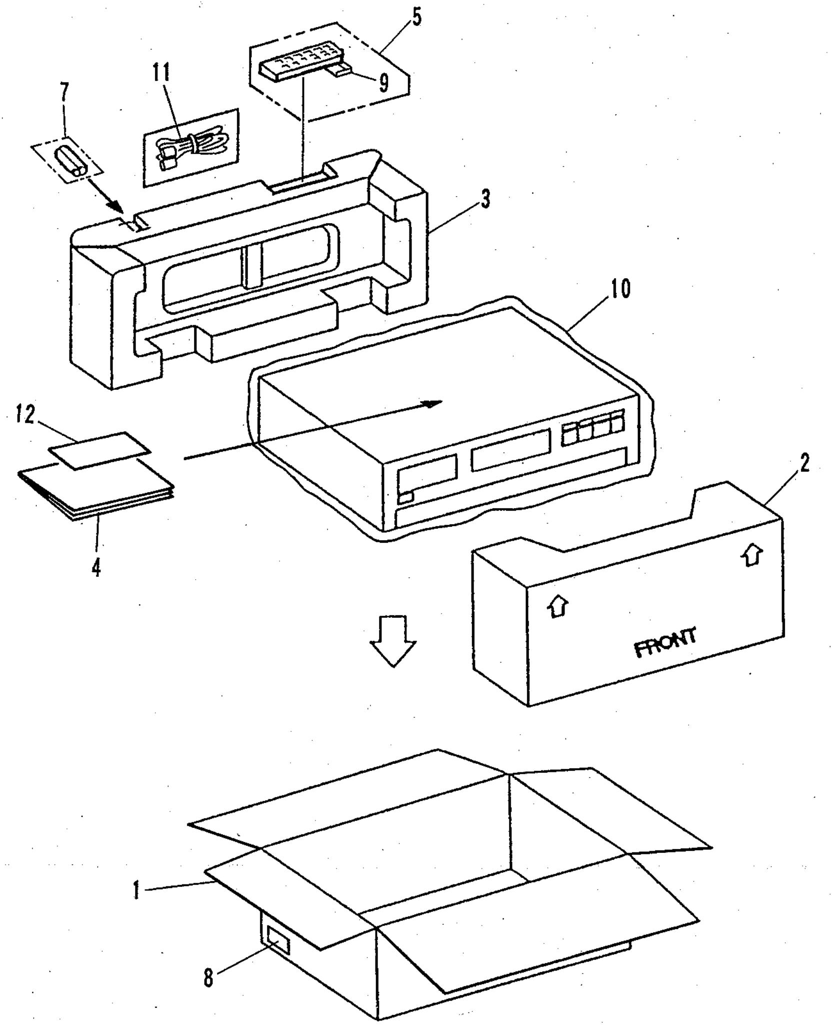
T–DFG NOV. 1994 Printed in Japan

2.1 PACKING AND EXPLODED VIEWS

1. PACKING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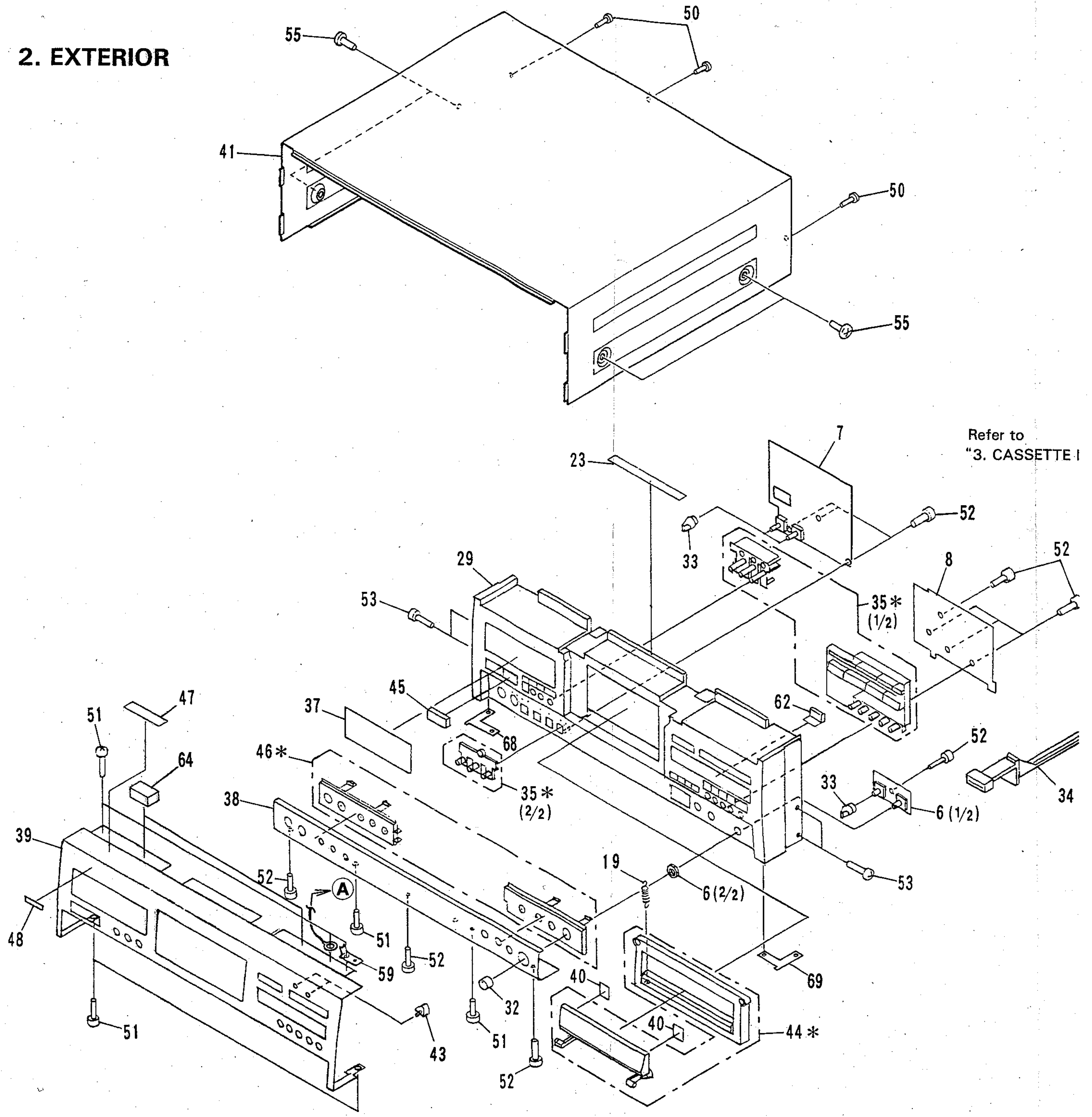
2. EXTERIOR


55
50
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Refer to
"3. CASSETTE I
23
7
52
33
29
52
53
8
35 *
(1/2)
45
47
37
68
62
51
46 *
64
35 *
(2/2)
52
33
6 (1/2)
34
38
39
52
A
51
19
6 (2/2)
53
48
59
52
32
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69
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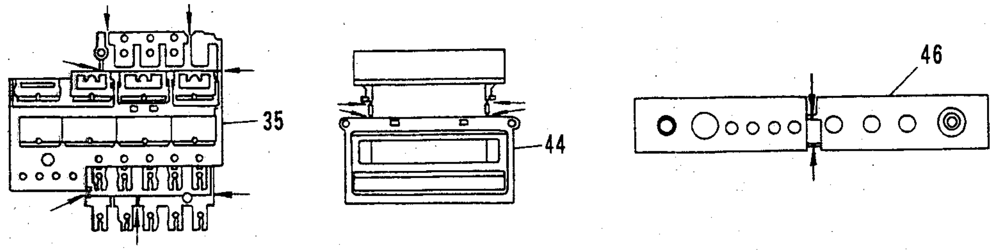
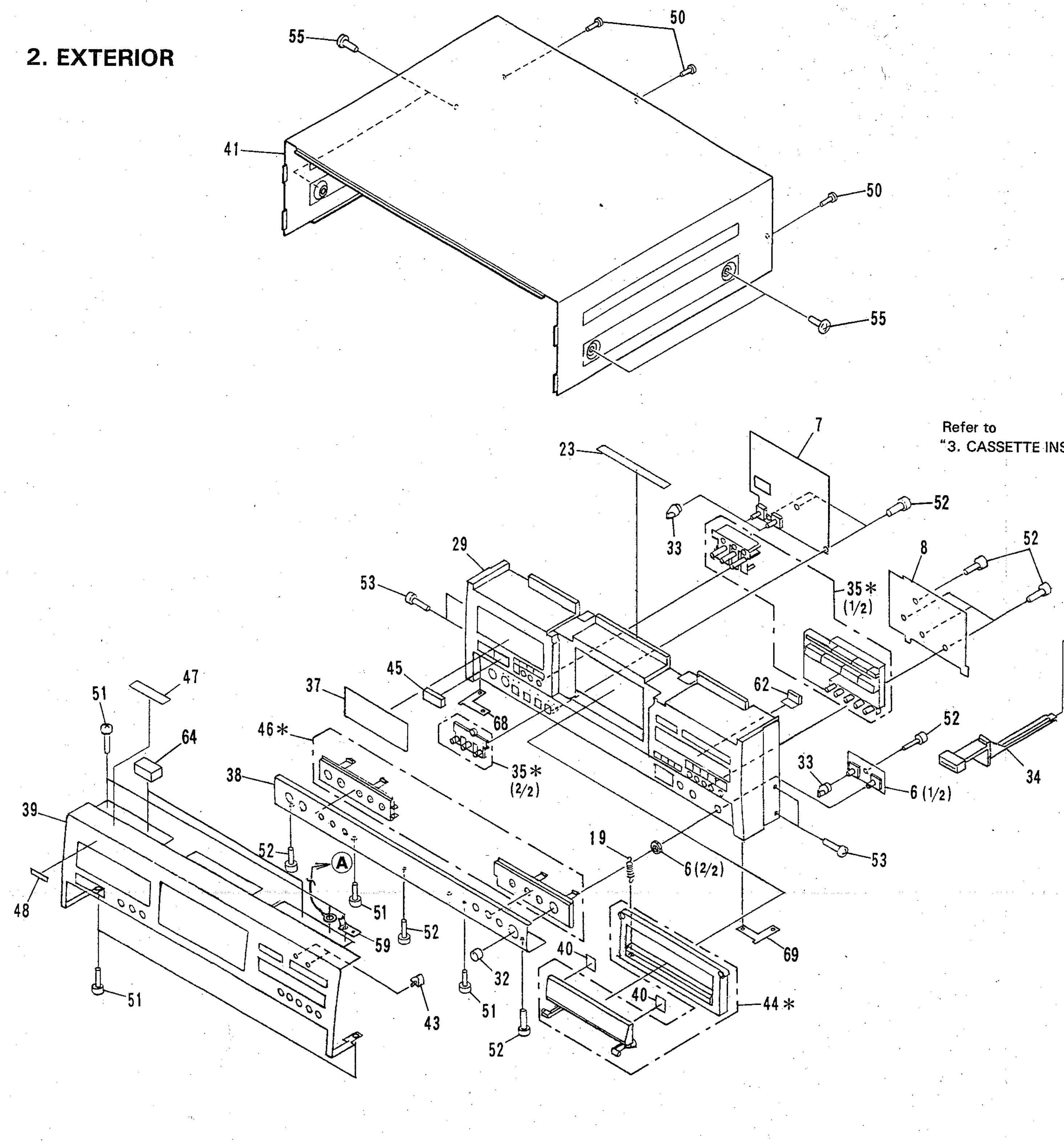
44 *
43
51
52

Use parts marked with * after cutting the parts shown by arrows with nippers etc.



2. EXTERIOR


55
50
41
50
55
23
7
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33
29
35* (1/2)
8
52
53
45
37
47
51
64
46*
68
35* (2/2)
62
52
33
6 (1/2)
34
38
39
52
Ⓐ
51
48
59
52
19
6 (2/2)
53
32
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40
69
40
44*
43
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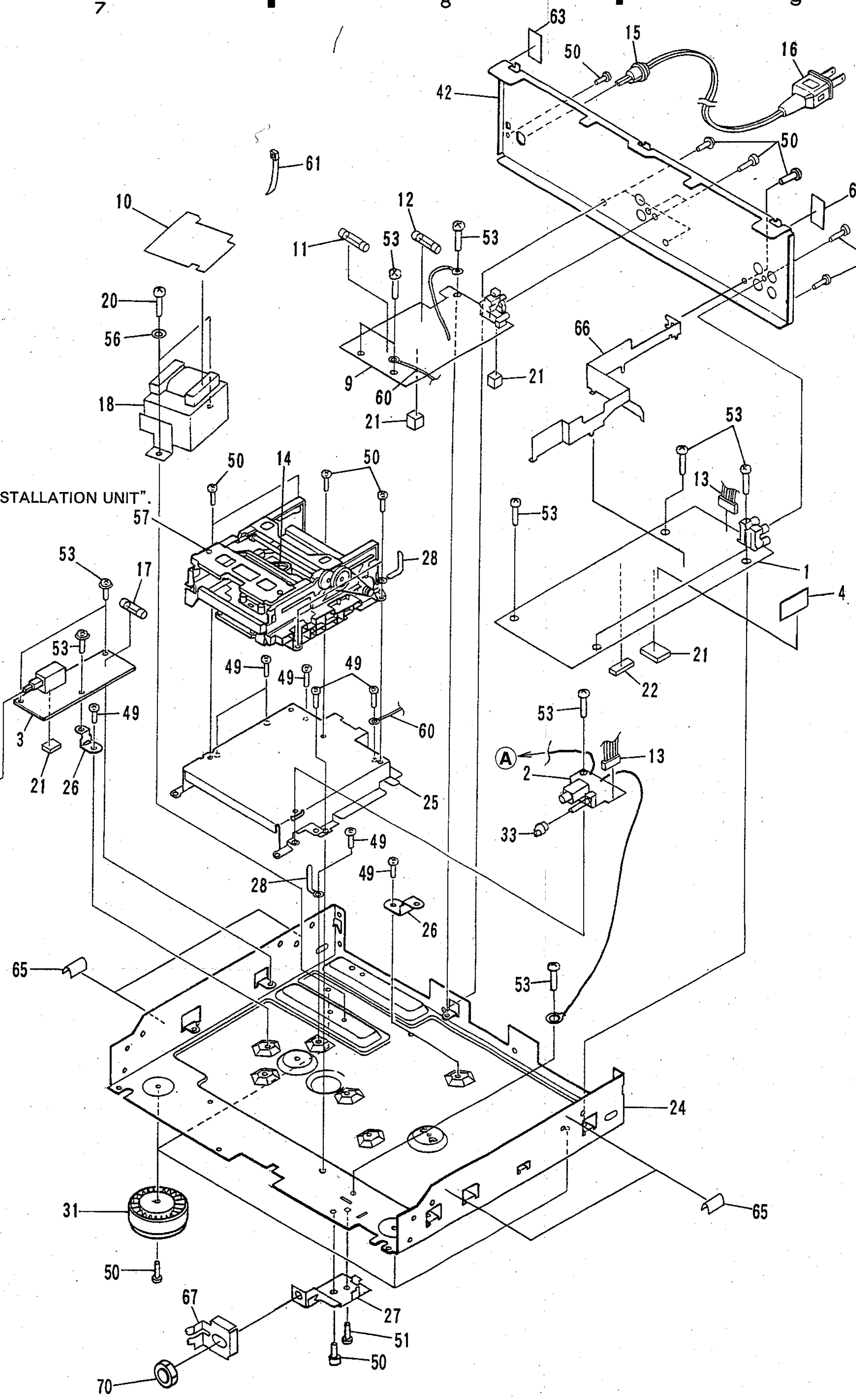
52

Refer to
"3. CASSETTE INSTALLATION UNIT".


63
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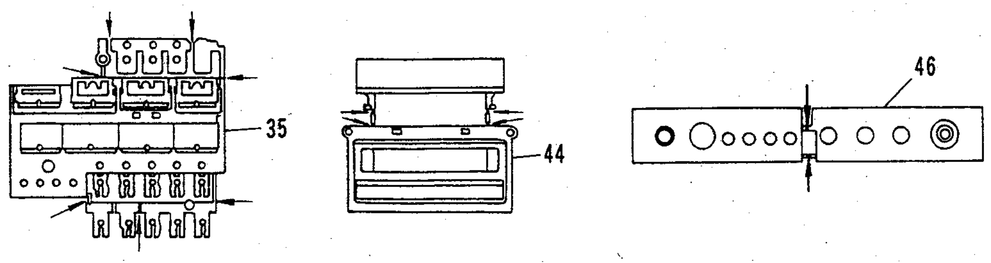
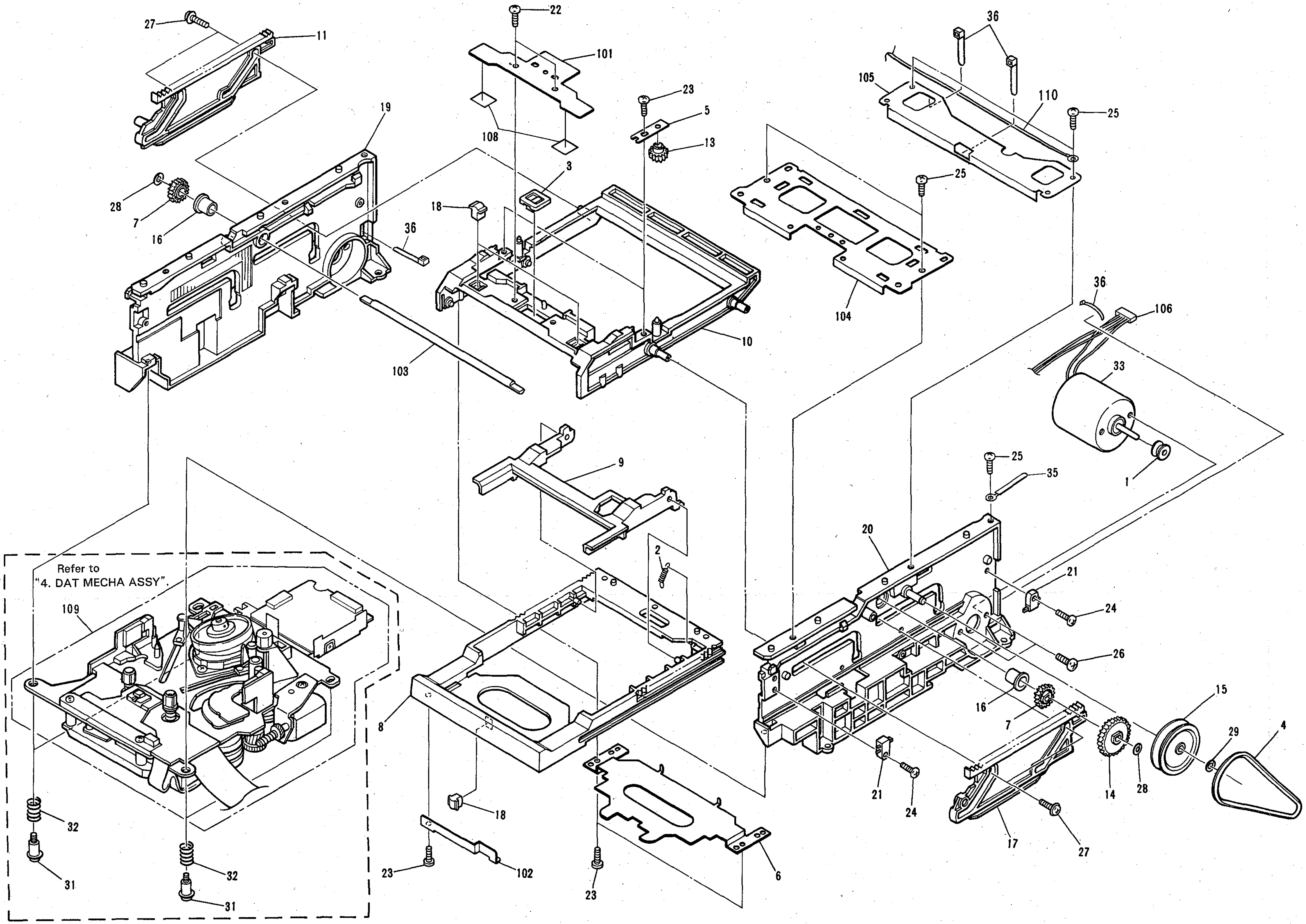
Use parts marked with * after cutting the parts shown by arrows
with nippers etc.



NOTE : Screws adjacent to ▼ mark on the product are used for disassembly.

3. CASSETTE INSTALLATION UNIT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17
27
Refer to
"4. DAT MECHA ASSY".
109
32
31
32
31
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102
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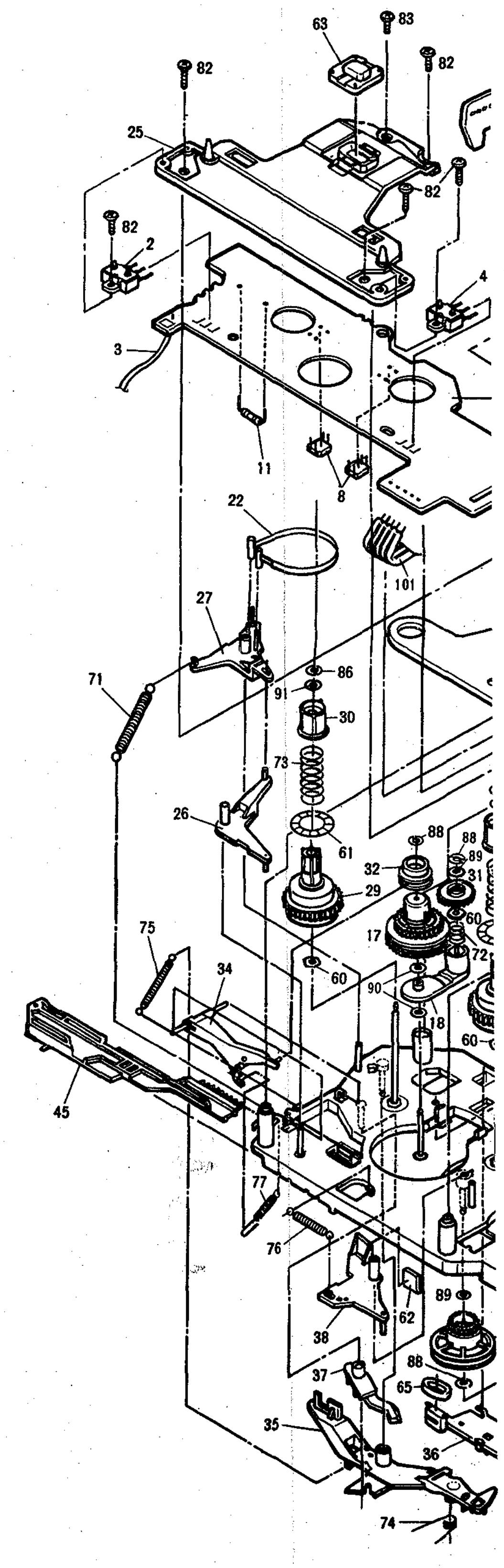
6
23

Note : Parts encircled with ⌐¬ *are not included in the Cassette installation unit.*

4. DAT MECHA ASSY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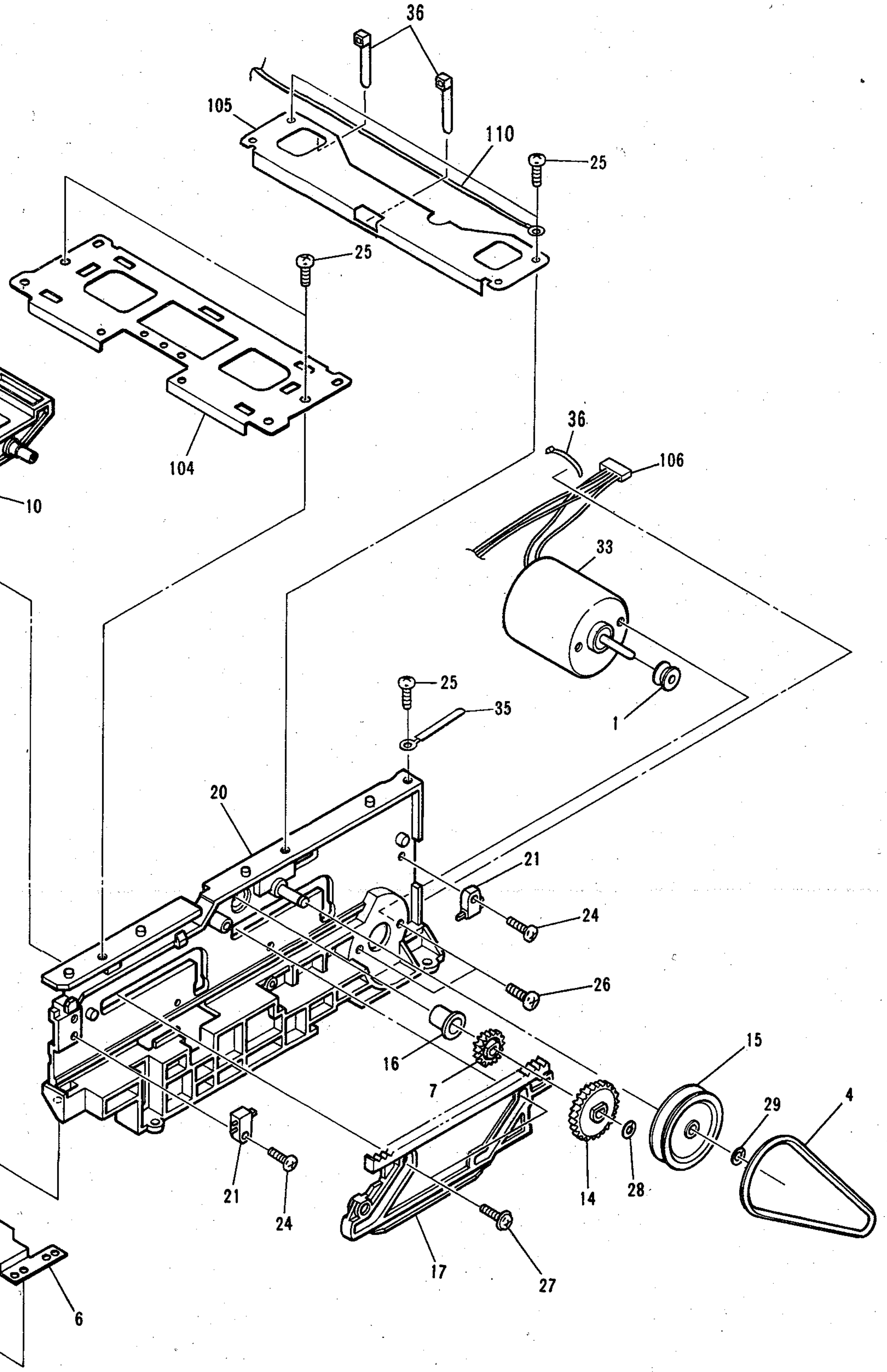
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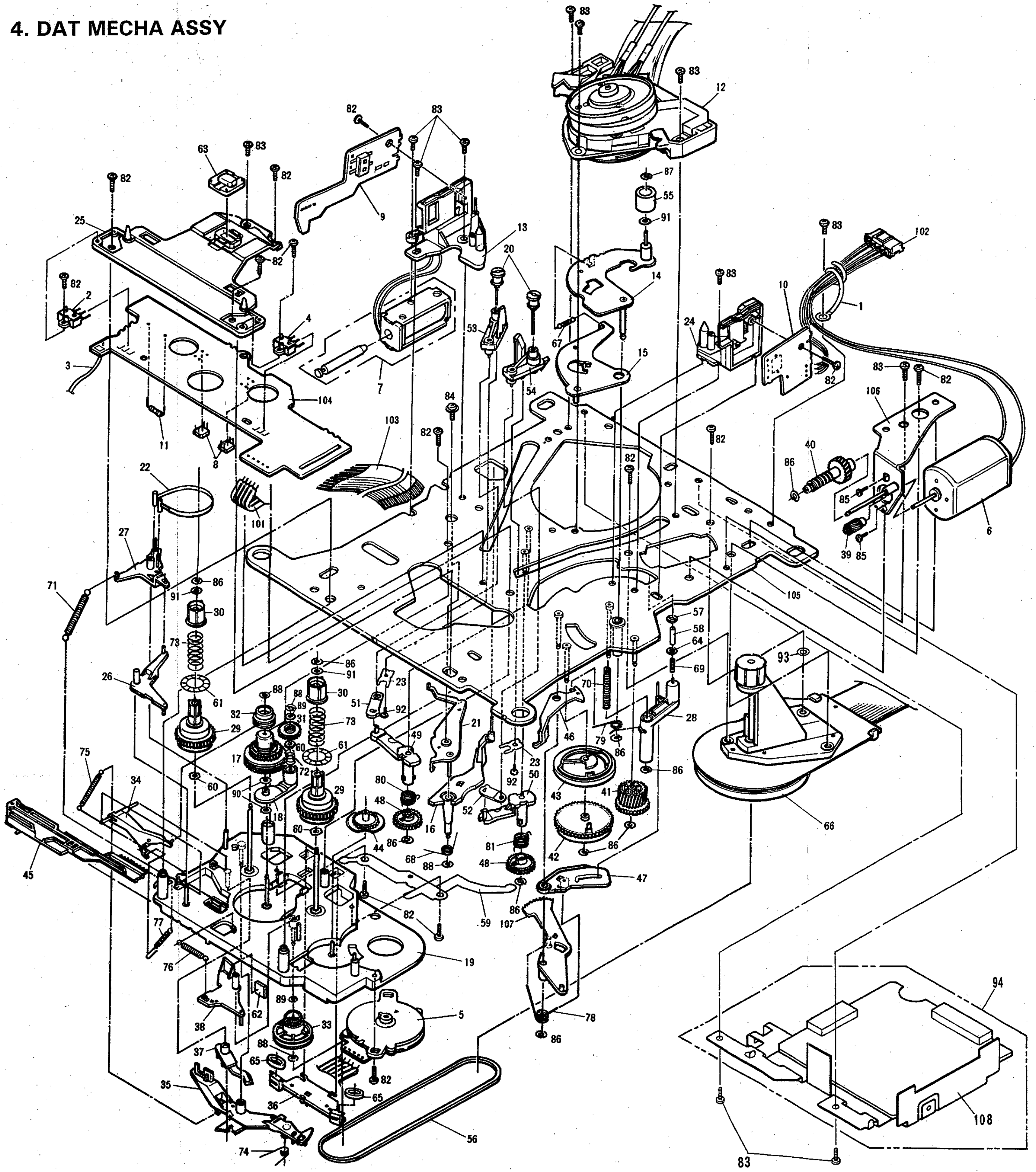
4. DAT MECHA ASSY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74
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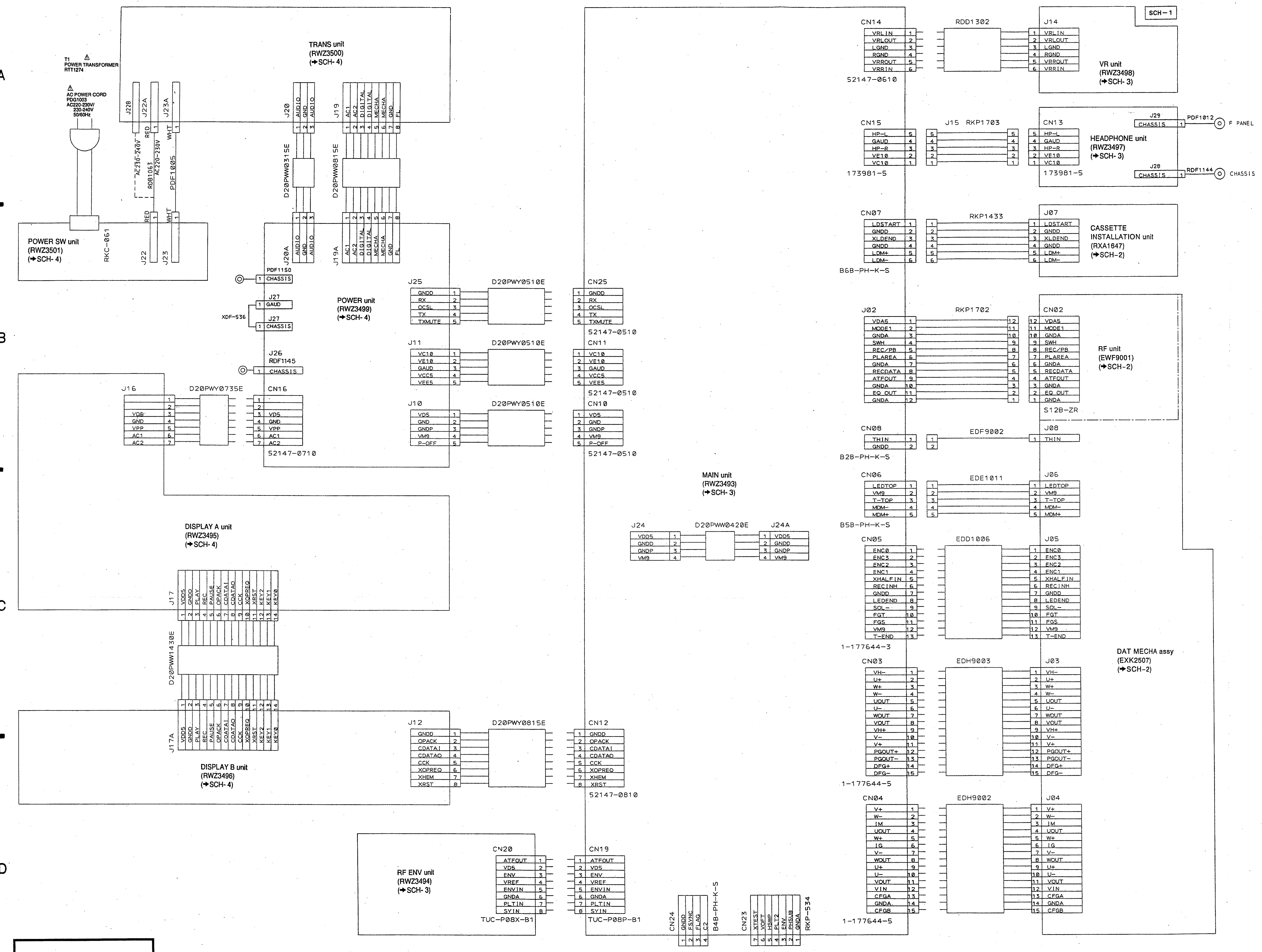
A
B
C
D

2.2 SCHEMATIC AND PCB CONNECTION DIAGRAMS

1. OVERALL SCHEMATIC DIAGRAM


T1 ⚠ POWER TRANSFORMER RTT1274
⚠ AC POWER CORD PDG1003 AC220-230V/ 230-240V 50/60Hz
TRANS unit (RWZ3500) (➔SCH- 4)
J22B
J22A
J23A
RED
WHT
AC230-240V
RDB1063
AC220-230V
PDF1005
J20 AUDIO GND AUDIO
J19 AC1 AC2 DIGITAL DIGITAL MECHA MECHA GND FL
D20PWW0315E
D20PWW0815E
POWER SW unit (RWZ3501) (➔SCH- 4)
RKC-061
J22
J23
J20A
J19A
PDF1150
CHASSIS
J27 GAUD
XDF-536
J27 CHASSIS
J26 RDF1145 CHASSIS
POWER unit (RWZ3499) (➔SCH- 4)
J25 GNDD RX OCSL TX TXMUTE
D20PWY0510E
CN25 GNDD RX OCSL TX TXMUTE
52147-0510
J11 VC10 VE10 GAUD VCC5 VEE5
CN11 VC10 VE10 GAUD VCC5 VEE5
J10 VD5 GND GNDP VM9 P-OFF
CN10 VD5 GND GNDP VM9 P-OFF
J16 VD5 GND VPP AC1 AC2
D20PWY0735E
CN16 VD5 GND VPP AC1 AC2
52147-0710
DISPLAY A unit (RWZ3495) (➔SCH- 4)
J17 VDD5 GNDD PLAY REC PAUSE OPACK CDATAI CDATAO CCK XOPREQ XRST KEY2 KEY1 KEY0
D20PWW1430E
J17A VDD5 GNDD PLAY REC PAUSE OPACK CDATAI CDATAO CCK XOPREQ XRST KEY2 KEY1 KEY0
DISPLAY B unit (RWZ3496) (➔SCH- 4)
J12 GNDD OPACK CDATAI CDATAO CCK XOPREQ XHEM XRST
D20PWY0815E
CN12 GNDD OPACK CDATAI CDATAO CCK XOPREQ XHEM XRST
52147-0810
RF ENV unit (RWZ3494) (➔SCH- 3)
CN20 ATFOUT VD5 ENV VREF ENVIN GNDA PLTIN SYIN
TUC-P08X-B1
CN19 ATFOUT VD5 ENV VREF ENVIN GNDA PLTIN SYIN
TUC-P08P-B1
CN24 GNDD FSYNC FLAG C2
B4B-PH-K-S
CN23 XTEST VOFT HSWP PLTZ ENV PHSWB GNDA
RKP-534
MAIN unit (RWZ3493) (➔SCH- 3)
J24 VDD5 GNDD GNDP VM9
D20PWW0420E
J24A VDD5 GNDD GNDP VM9
SCH-1
CN14 VRLIN VRLOUT LGND RGND VRROUT VRRIN
52147-0610
RDD1302
J14 VRLIN VRLOUT LGND RGND VRROUT VRRIN
VR unit (RWZ3498) (➔SCH- 3)
CN15 HP-L GAUD HP-R VE10 VC10
173981-5
J15 RKP1703
CN13 HP-L GAUD HP-R VE10 VC10
HEADPHONE unit (RWZ3497) (➔SCH- 3)
J29 CHASSIS
PDF1012
F PANEL
J28 CHASSIS
RDF1144
CHASSIS
CN07 LDSTART GNDD XLDEND GNDD LDM+ LDM-
B6B-PH-K-S
RKP1433
J07 LDSTART GNDD XLDEND GNDD LDM+ LDM-
CASSETTE INSTALLATION unit (RXA1647) (➔SCH-2)
J02 VDA5 MODE1 GNDA SWH REC/PB PLAREA GNDA RECDATA ATFOUT GNDA EQ OUT GNDA
RKP1702
CN02 VDA5 MODE1 GNDA SWH REC/PB PLAREA GNDA RECDATA ATFOUT GNDA EQ OUT GNDA
S12B-ZR
RF unit (EWF9001) (➔SCH-2)
CN08 THIN GNDD
B2B-PH-K-S
EDF9002
J08 THIN
CN06 LEDTOP VM9 T-TOP MDM- MDM+
B5B-PH-K-S
EDE1011
J06 LEDTOP VM9 T-TOP MDM- MDM+
CN05 ENC0 ENC3 ENC2 ENC1 XHALFIN RECINH GNDD LEDEND SOL- FGT FGS VM9 T-END
1-177644-3
EDD1006
J05 ENC0 ENC3 ENC2 ENC1 XHALFIN RECINH GNDD LEDEND SOL- FGT FGS VM9 T-END
DAT MECHA assy (EXK2507) (➔SCH-2)
CN03 VH- U+ W+ W- UOUT U- WOUT VOUT VH+ V- V+ PGOUT+ PGOUT- DFG+ DFG-
1-177644-5
EDH9003
J03 VH- U+ W+ W- UOUT U- WOUT VOUT VH+ V- V+ PGOUT+ PGOUT- DFG+ DFG-
CN04 V+ W- IM UOUT W+ IG V- WOUT U+ U- VOUT VIN CFGA GNDA CFGB
1-177644-5
EDH9002
J04 V+ W- IM UOUT W+ IG V- WOUT U+ U- VOUT VIN CFGA GNDA CFGB

NOTE FOR SCHEMATIC DIAGRAMS (Type 6A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ or ← V :
   DC voltage (V) in STOP mode unless otherwise noted.
   ⇦ mA or ← mA :
   DC current in STOP mode unless otherwise noted.
7. **OTHERS:**
   - ⊘ or ⊘ : Adjusting point.
   - ● : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH-□ ON THE SCHEMATIC DIAGRAM:**
   - SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

DISPLAY A unit

S1601	TIMER REC/OFF/PLAY
S1602	COUNTER RESET
S1603	CUUNTER MODE
S1604	INPUT
S1605	ID MODE
S1607	PEAK RESET
S1608	ENTER
S1612	REC MODE LP/SP/HIGH SAMPLING

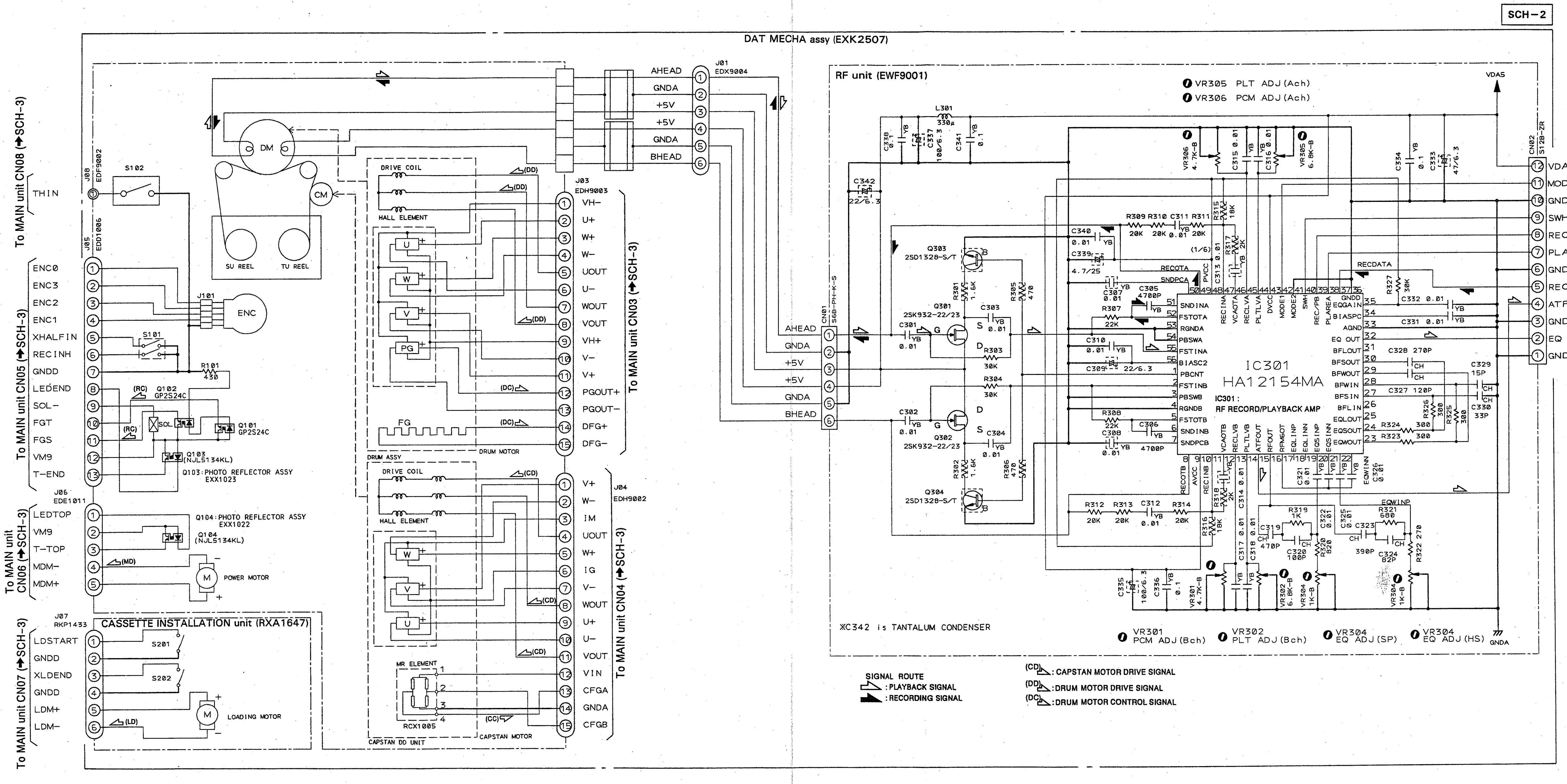
DISPLAY B unit

S1501	◀◀
S1502	⏏ OPEN/CLOSE
S1503	■
S1504	MUSIC SEARCH −
S1505	MUSIC SEARCH +
S1506	●
S1507	❚❚
S1508	AUTO ID
S1509	TOC RENUM
S1510	CHARACTER
S1511	▢ (MUTE)
S1512	▶▶
S1513	▶

POWER SW unit

S1201	POWER ON/OFF

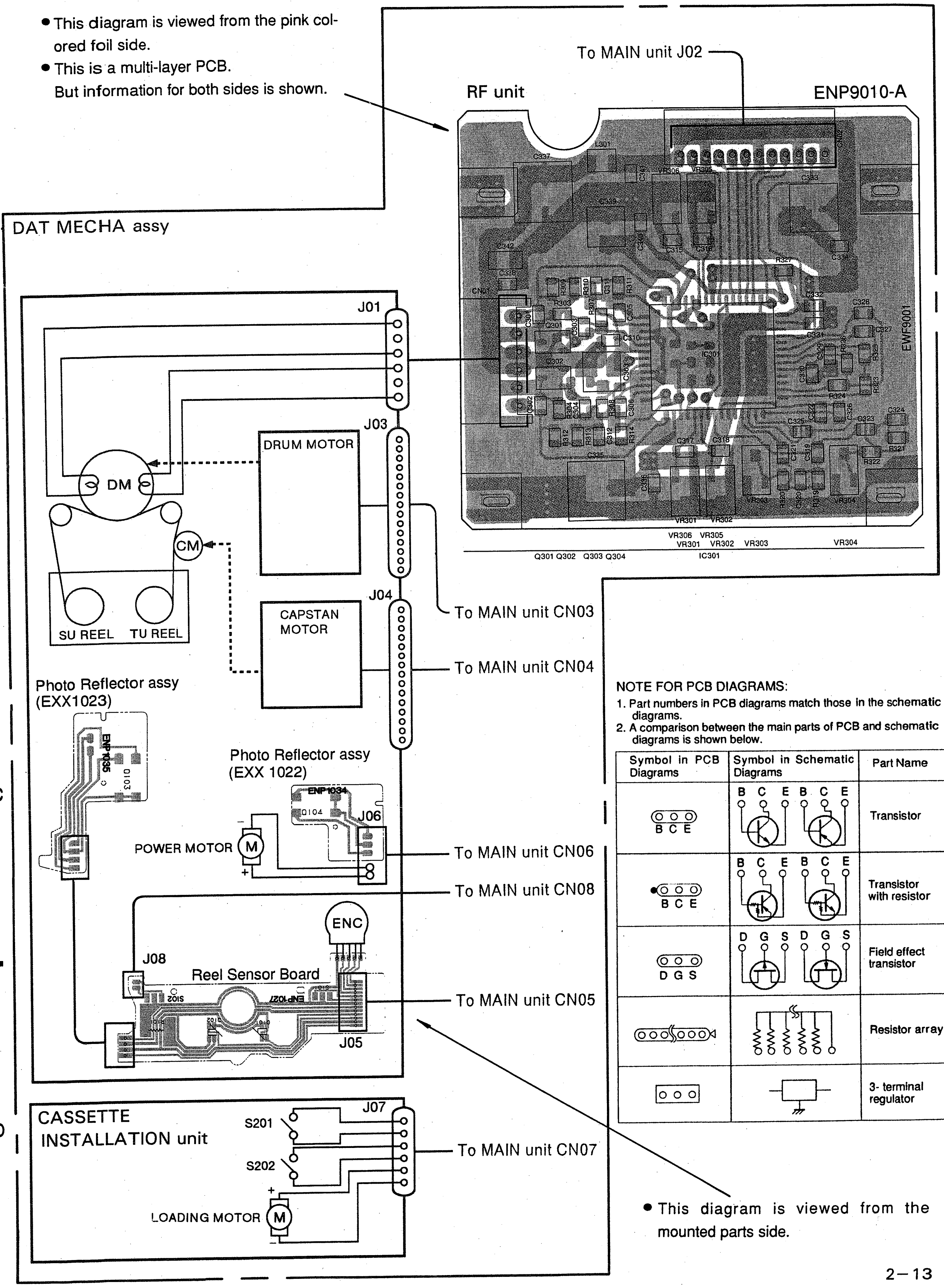
2. DAT MECHA ASSY、RF UNIT


SCH-2
DAT MECHA assy (EXK2507)
RF unit (EWF9001)
To MAIN unit CN08 (→SCH-3)
To MAIN unit CN05 (→SCH-3)
To MAIN unit CN06 (→SCH-3)
To MAIN unit CN07 (→SCH-3)
To MAIN unit CN03 (→SCH-3)
To MAIN unit CN04 (→SCH-3)
To MAIN unit J02 (→SCH-3)
J08 EDF9002
THIN
S102
DM
CM
SU REEL
TU REEL
J05 EDD1006
ENC0
ENC3
ENC2
ENC1
XHALFIN
RECINH
GNDD
LEDEND
SOL−
FGT
FGS
VM9
T-END
J101
ENC
S101
R101 430
Q102 GP2S24C
Q101 GP2S24C
Q103 (NJL5134KL)
Q103: PHOTO REFLECTOR ASSY EXX1023
J06 EDE1011
LEDTOP
VM9
T-TOP
MDM−
MDM+
Q104: PHOTO REFLECTOR ASSY EXX1022
Q104 (NJL5134KL)
POWER MOTOR
J07 RKP1433
CASSETTE INSTALLATION unit (RXA1647)
LDSTART
GNDD
XLDEND
GNDD
LDM+
LDM−
S201
S202
LOADING MOTOR
DRIVE COIL
HALL ELEMENT
FG
DRUM MOTOR
DRUM ASSY
MR ELEMENT
RCX1005
CAPSTAN MOTOR
CAPSTAN DD UNIT
J03 EDH9003
VH−
U+
W+
W−
UOUT
U−
WOUT
VOUT
VH+
V−
V+
PGOUT+
PGOUT−
DFG+
DFG−
J04 EDH9002
V+
W−
IM
UOUT
W+
IG
V−
WOUT
U+
U−
VOUT
VIN
CFGA
GNDA
CFGB
J01 EDX9004
AHEAD
GNDA
+5V
+5V
GNDA
BHEAD
CN01 S6B-PH-K-S
L301 330μ
C338 0.1
C337 100/6.3
C341 0.1
C342 22/6.3
Q303 2SD1328-S/T
Q301 2SK932-22/23
Q302 2SK932-22/23
Q304 2SD1328-S/T
R301 1.6K
R302 1.6K
R305 470
R306 470
R303 30K
R304 30K
C301 0.01
C302 0.01
C303 0.01
C304 0.01
VR305 PLT ADJ (Ach)
VR306 PCM ADJ (Ach)
VR306 4.7K-B
VR305 6.8K-B
C315 0.01
C316 0.01
R309 20K
R310 20K
C311 0.01
R311 20K
R315 10K
R317 2K
C340 0.01
C339 4.7/25
C307 0.01
C305 4700P
R307 22K
C310 0.01
C309 22/6.3
R308 22K
C306 4700P
C308 0.01
C313 0.01
RECDATA
R327 30K
C332 0.01
C331 0.01
C334 0.1
C333 47/6.3
VDA5
CN02 S12B-ZR
VDA5
MODE1
GNDA
SWH
REC/PB
PLAREA
GNDA
RECDATA
ATFOUT
GNDA
EQ OUT
GNDA
IC301
HA12154MA
IC301: RF RECORD/PLAYBACK AMP
SNDINA
FSTOTA
RGNDA
PBSWA
FSTINA
BIASC2
PBCNT
FSTINB
PBSWB
RGNDB
FSTOTB
SNDINB
SNDPCB
SNDPCA
RECOTA
PVCC
RECINA
VCAOTA
RECLVA
PLTLVA
DVCC
MODE1
MODE2
SWH
REC/PB
PLAREA
GNDD
EQGAIN
BIASPC
AGND
EQ OUT
BFLOUT
BFSOUT
BFWOUT
BFWIN
BFSIN
BFLIN
EQLOUT
EQSOUT
EQWOUT
RECOTB
AVCC
RECINB
VCAOTB
RECLVB
PLTLVB
ATFOUT
RFOUT
RFAGOT
EQLINP
EQLINN
EQSINP
EQSINN
EQWINN
EQWINP
C328 270P
C329 15P
C327 120P
C330 33P
R326 300
R325 300
R324 300
R323 300
C326 0.01
R312 20K
R313 20K
C312 0.01
R314 20K
R316 10K
R318 2K
C314 0.01
C317 0.01
C318 0.01
R319 1K
C319 470P
C320 100P
C321 0.01
C322 0.01
C325 0.01
R320 820
R321 680
C323 390P
C324 82P
R322 270
C335 100/6.3
C336 0.1
VR301 4.7K-B
VR302 6.8K-B
VR304 1K-B
VR303 1K-B
GNDA
※C342 is TANTALUM CONDENSER
VR301 PCM ADJ (Bch)
VR302 PLT ADJ (Bch)
VR304 EQ ADJ (SP)
VR304 EQ ADJ (HS)
SIGNAL ROUTE
: PLAYBACK SIGNAL
: RECORDING SIGNAL
(CD): CAPSTAN MOTOR DRIVE SIGNAL
(DD): DRUM MOTOR DRIVE SIGNAL
(DC): DRUM MOTOR CONTROL SIGNAL
(CC)
(MD)
(LD)
(RC)

SCH−2 DAT MECHA ASSY、RF UNIT
(CASSETTE INSTALLATION UNIT)

DAT MECHA ASSY、RF UNIT
(CASSETTE INSTALLATION UNIT) **SCH−2**

- This diagram is viewed from the pink colored foil side.
- This is a multi-layer PCB. But information for both sides is shown.


A
B
C
D
To MAIN unit J02
RF unit
ENP9010-A
EWF9001
CN01
CN02
IC301
VR306 VR305
VR301 VR302 VR303
VR304
Q301 Q302 Q303 Q304
IC301
DAT MECHA assy
J01
J03
DRUM MOTOR
DM
CM
SU REEL
TU REEL
J04
CAPSTAN MOTOR
To MAIN unit CN03
To MAIN unit CN04
Photo Reflector assy (EXX1023)
ENP1035
D103
Photo Reflector assy (EXX 1022)
ENP1034
D104
J06
POWER MOTOR
M
To MAIN unit CN06
To MAIN unit CN08
ENC
J08
Reel Sensor Board
S102
ENP1027
J05
To MAIN unit CN05
CASSETTE INSTALLATION unit
J07
S201
S202
LOADING MOTOR
M
To MAIN unit CN07

NOTE FOR PCB DIAGRAMS:
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3- terminal regulator

- This diagram is viewed from the mounted parts side.

- This diagram is viewed from the gray colored foil side.
- This is a multi-layer PCB.
But information for both sides is shown.

RF unit

ENP9010-A

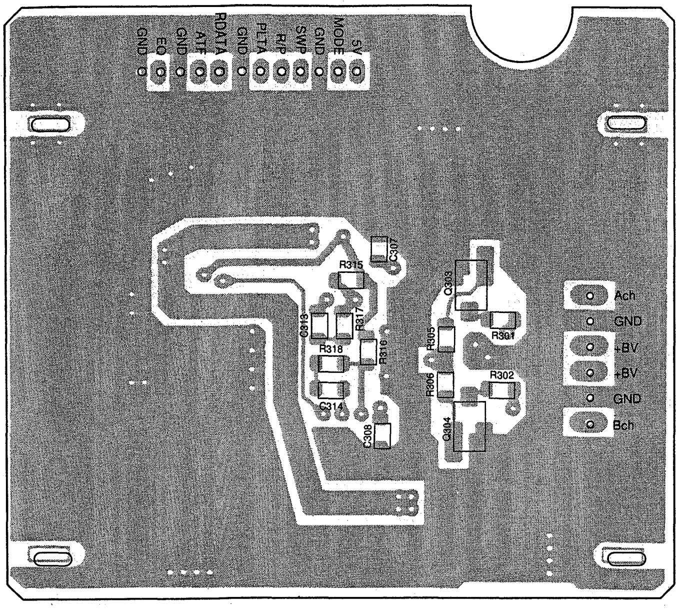

5V
MODE
GND
SWP
R/P
PLTA
GND
RDATA
ATF
GND
EO
GND
R315
C307
Q303
C313
R317
R316
R318
R305
R301
R306
R302
C314
C308
Q304
Ach
GND
+BV
+BV
GND
Bch

Photo Reflector assy
(EXX1023)

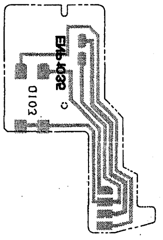
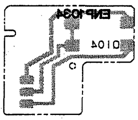
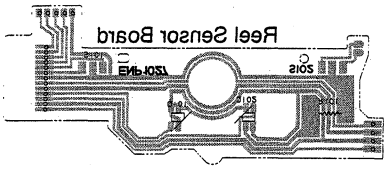

ENP1035
D103

Photo Reflector assy
(EXX 1022)


ENP1034
D104

Reel Sensor Board

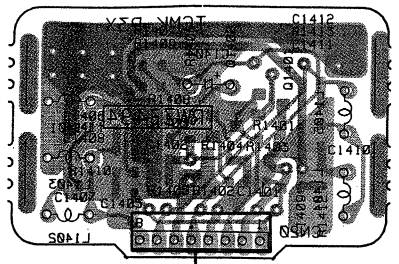

ENP1027
D102
D105

- This diagram is viewed from the foil side.

A
B
C
D

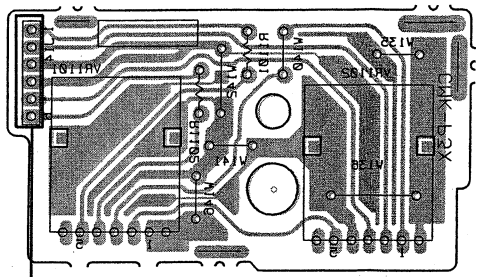
3. MAIN UNIT, VR UNIT, HEADPHONE UNIT, RF ENV UNIT

RF ENV unit


CMK-P2X
L1402

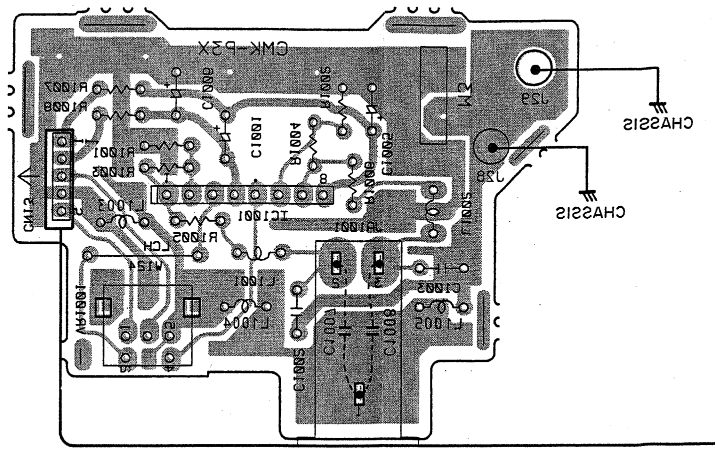
- This diagram is viewed from the gray colored foil side.
- This PCB is double side.

VR unit



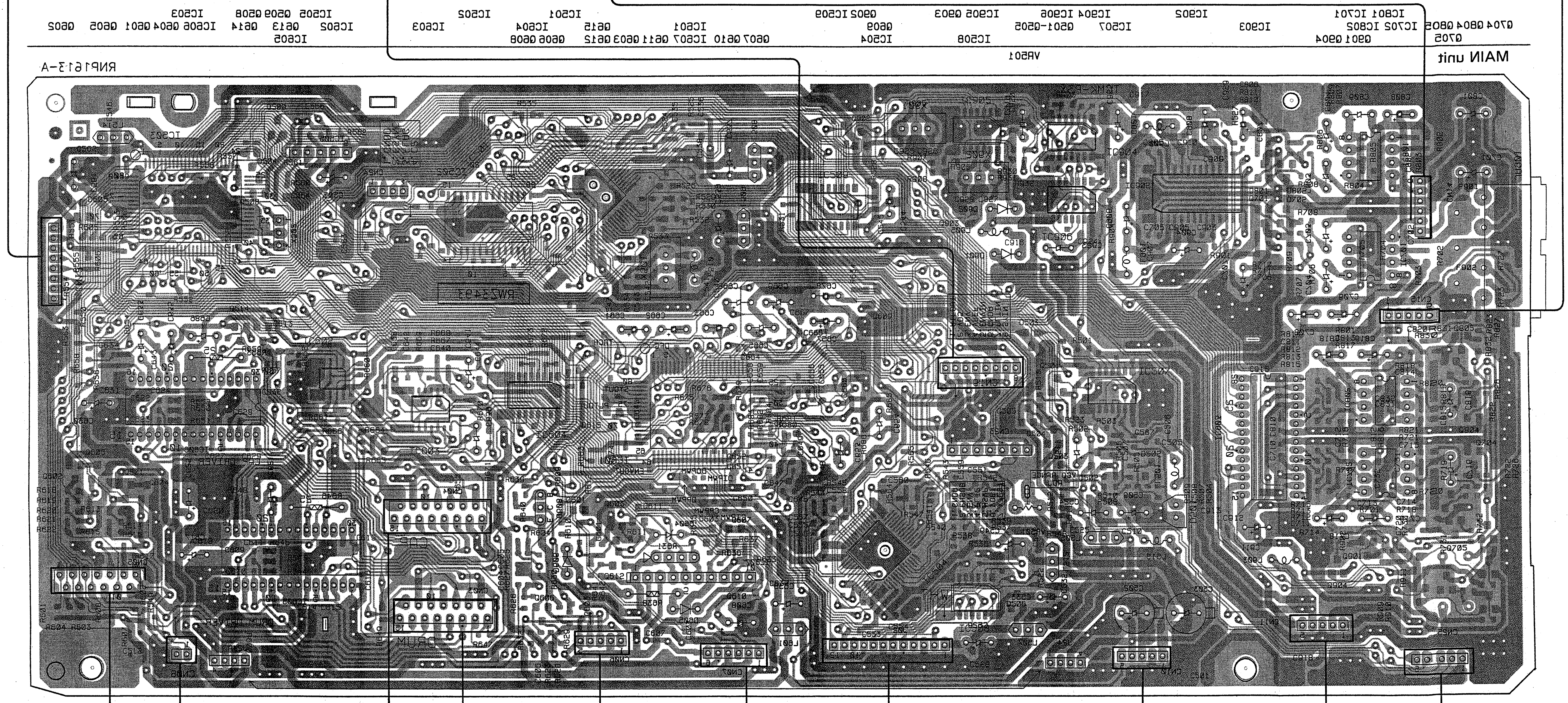
- This diagram is viewed from the foil side.

HEADPHONE unit


CMK-P3X
J25
J26
CHASSIS
CHASSIS

To DISPLAY B unit J12

MAIN unit


Q704 Q804 Q805
Q705
IC801 IC701
IC702 IC802
Q901 Q904
IC903
IC902
IC904 IC906
Q901-Q905
IC507
IC905 Q903
IC508
Q902 IC509
Q909
IC504
VR501
IC601
Q607 Q610 IC607 Q611 Q603 Q612
IC501
IC604
Q615
Q606 Q608
IC502
IC603
IC505 Q509 Q508 IC503
IC602
Q613 Q614 IC606 Q604 Q601 Q605 Q602
IC605
RNP1613-A

To DAT MECHA assy J04

To DAT MECHA assy J03

To DAT MECHA assy J08

To DAT MECHA assy J05

To DAT MECHA assy J06

To CASSETTE INSTALLATION unit J07

To RF unit CN02

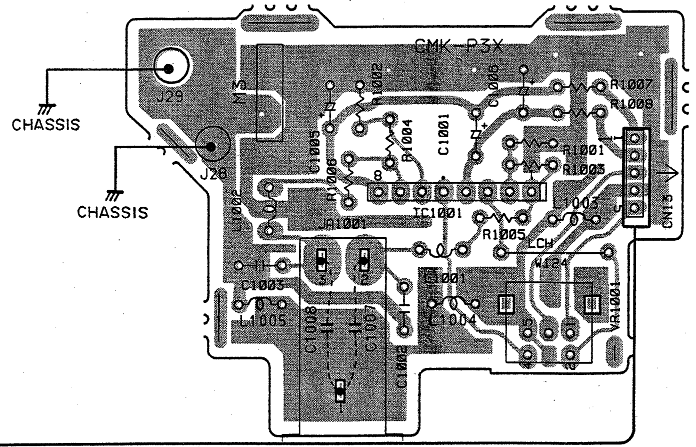
To POWER unit J10

To POWER unit J11

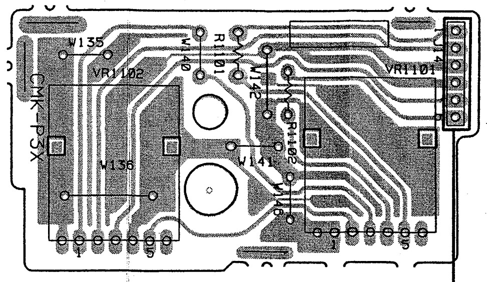
To POWER unit J25

3. MAIN UNIT、VR UNIT、HEADPHONE UNIT、RF ENV UNIT

HEADPHONE unit

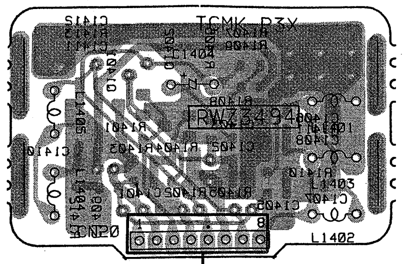

CMK-P3X
J29
J28
CHASSIS
CHASSIS
R1007
R1008
R1001
R1003
R1004
R1005
R1006
C1001
C1003
C1004
C1005
C1007
C1008
IC1001
L1002
L1003
L1005
JA1001
VR1001
LCH
CN15

VR unit


CMK-P3X
VR1102
VR1101
W135
W136
W140
W141
R1101

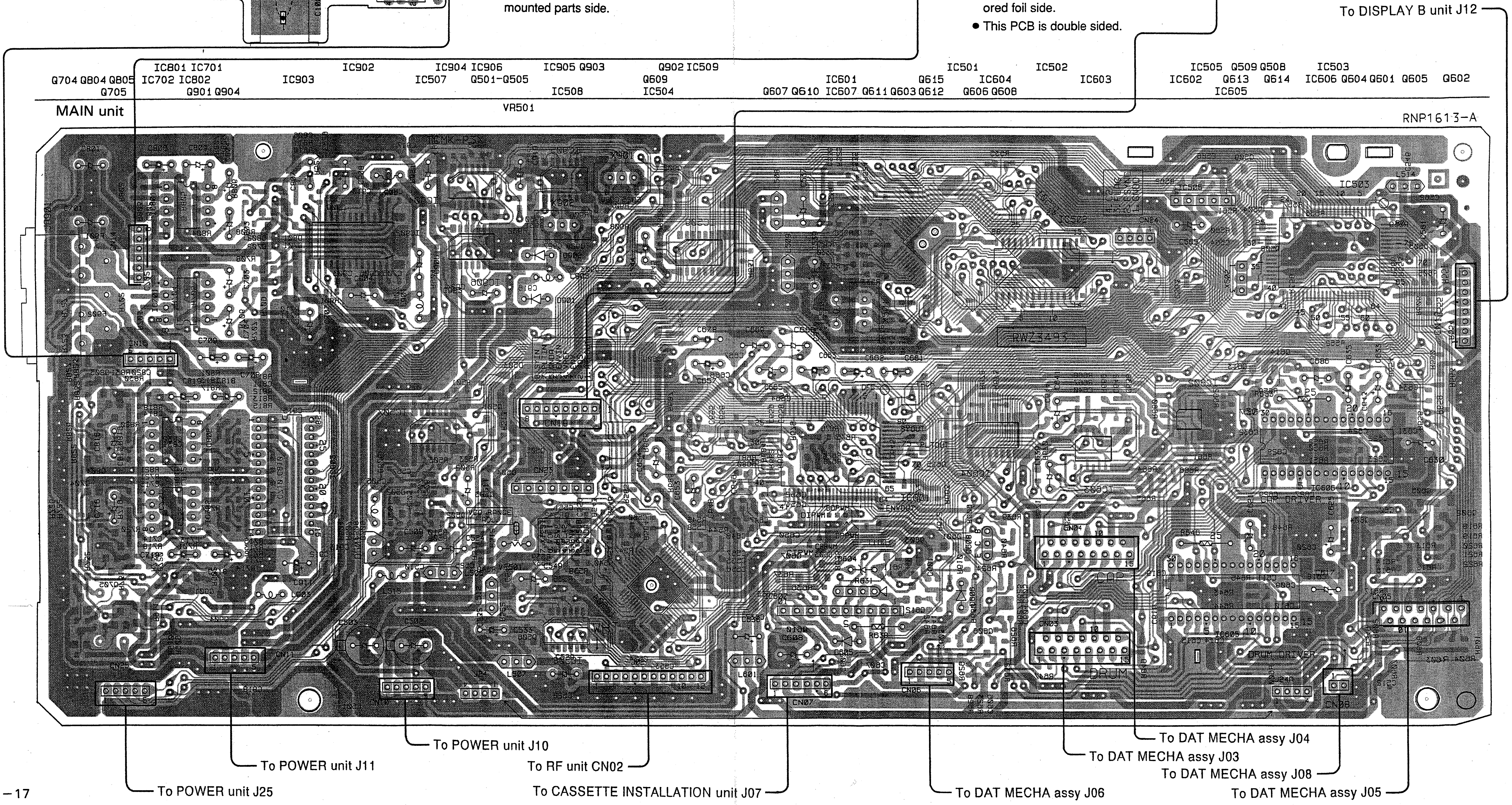
- This diagram is viewed from the mounted parts side.

RF ENV unit


CMK-P3X
RWZ3494
CN20
L1402
L1403

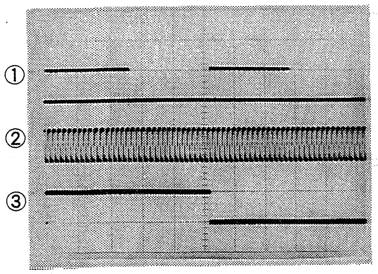
- This diagram is viewed from the pink colored foil side.
- This PCB is double sided.

MAIN unit


To DISPLAY B unit J12
Q704 Q804 Q805
Q705
IC801 IC701
IC702 IC802
Q901 Q904
IC903
IC902
IC904 IC906
IC507
Q501-Q505
IC905 Q903
IC508
VR501
Q902 IC509
Q609
IC504
Q607 Q610
IC601
IC607 Q611
Q603
Q615
Q612
IC501
IC604
Q606 Q608
IC502
IC603
IC505 Q509 Q508
IC602
Q613
IC605
Q614
IC503
IC606 Q604 Q601
Q605
Q602
RNP1613-A
RWZ3493
CAP DRIVER
DRUM DRIVER
CAP
DRUM
To POWER unit J25
To POWER unit J11
To POWER unit J10
To RF unit CN02
To CASSETTE INSTALLATION unit J07
To DAT MECHA assy J06
To DAT MECHA assy J04
To DAT MECHA assy J03
To DAT MECHA assy J08
To DAT MECHA assy J05

● Waveforms

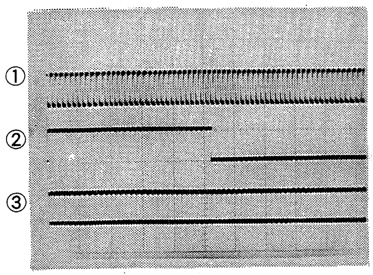
A1 : ADC



Mode: SP (REC)
Input: 1kHz, 0dB
5Vdiv., 2μS/div.

① SDATA
(IC902 – Pin16)
② SCLK
(IC902 – Pin15)
③ L/$\overline{R}$
(IC902 – Pin14)

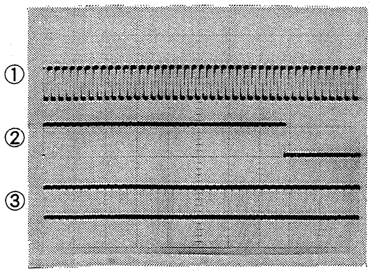
A2 : DAC



Mode: SP (REC)
Input: 1kHz, 0dB
5Vdiv., 2μS/div.

① BCK
(IC903 – Pin26)
② LRCK
(IC903 – Pin27)
③ DATA
(IC903 – Pin25)

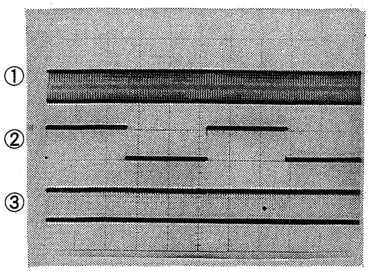
A3 : DAC



Mode: LP (REC)
Input: 1kHz, 0dB
5Vdiv., 2μS/div.

① BCK
(IC903 – Pin26)
② LRCK
(IC903 – Pin27)
③ DATA
(IC903 – Pin25)

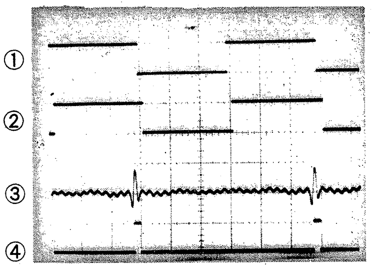
A4 : DAC



Mode: WSP (REC)
Input: 1kHz, 0dB
5Vdiv., 2μS/div.

① BCK
(IC903 – Pin26)
② LRCK
(IC903 – Pin27)
③ DATA
(IC903 – Pin25)

D1

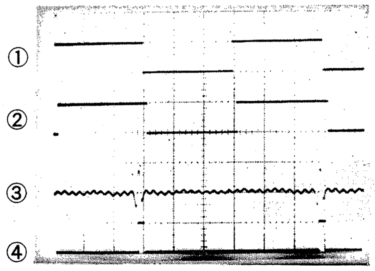


Mode: SP (PLAY)
5Vdiv., 5mS/div.
(DPG: 0.5V/div.)

① SWH
(IC601 – Pin70)
② SREF
(IC601 – Pin71)
③ DPG
(IC603 – Pin1)
④ TACH
(IC601 – Pin7)

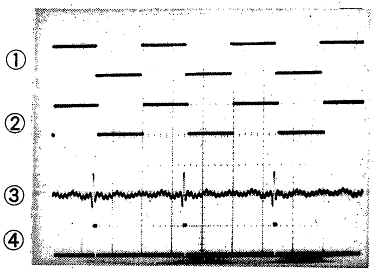
D2

Mode: LP
(REC – PLAY)
5Vdiv., 10mS/div.
(DPG: 0.5V/div.)



① SWH
(IC601 – Pin70)
② SREF
(IC601 – Pin71)
③ DPG
(IC603 – Pin1)
④ TACH
(IC601 – Pin7)

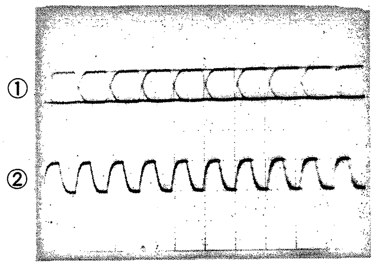
D3



Mode: WSP (PLAY)
5Vdiv., 5mS/div.
(DPG: 0.5V/div.)

① SWH
(IC601 – Pin70)
② SREF
(IC601 – Pin71)
③ DPG
(IC603 – Pin1)
④ TACH
(IC601 – Pin7)

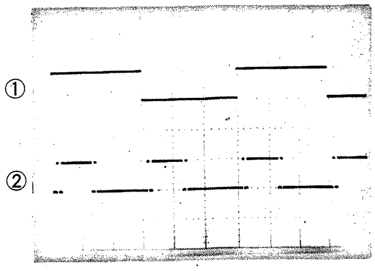
D4



Mode: SP (PLAY)
5Vdiv., 0.1μS/div.

① PDATA
(IC504 – Pin52)
② PDCK
(IC504 – Pin51)

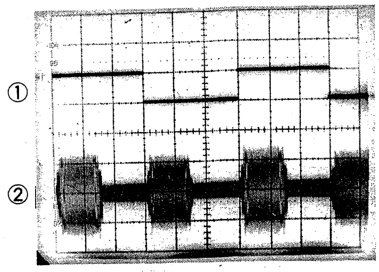
D5



Mode: SP (PLAY)
5Vdiv., 5mS/div.

① SWH
(IC601−Pin70)
② PARITY
(IC601−Pin67)

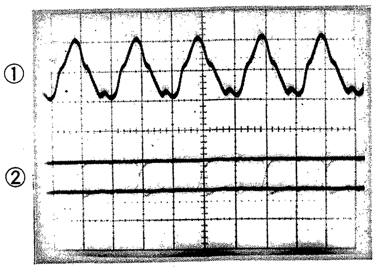
D6



Mode: SP (PLAY)

① HSWP
(CN23−Pin5)
5Vdiv., 5mS/div.
② EQ OUT
(J02−Pin11)
0.2Vdiv., 5mS/div.

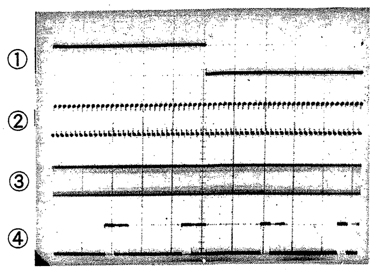
D7



Mode: D−IN (REC)
Fs=48kHz

① EXCK
(IC501−Pin85)
2Vdiv., 20nS/div.
② RX
(IC501−Pin83)
5Vdiv., 20nS/div.

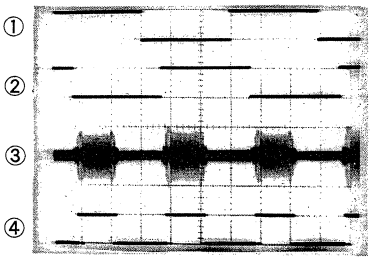
D9



Mode: SP (REC)
Input: No input
5Vdiv., 2μS/div.

① MPX
(IC501−Pin73)
② BCK
(IC501−Pin72)
③ FS256
(IC501−Pin70)
④ SOUT
(IC501−Pin71)

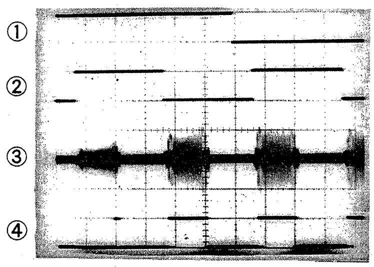
D10



Mode: SP (PLAY)
5Vdiv., 5mS/div.
(ENVIN: 0.5V/div.)

① FSYNC
(CN24−Pin2)
② HSWP
(CN23−Pin5)
③ ENV
(CN23−Pin3)
④ ENVOUT
(IC601−Pin64)

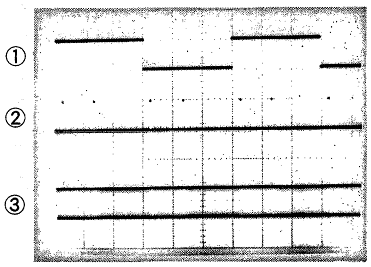
D11



Mode: LP (PLAY)
5Vdiv., 5mS/div.
(ENVIN: 0.5V/div.)

① FSYNC
(CN24−Pin2)
② HSWP
(CN23−Pin5)
③ ENV
(CN23−Pin3)
④ ENVOUT
(IC601−Pin64)

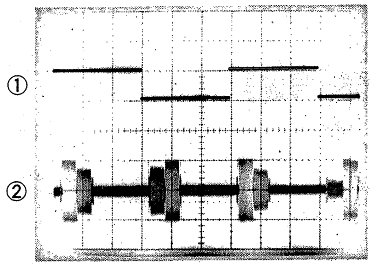
D12



Mode: SP (REC)
5Vdiv., 5mS/div.

① HSWP
(CN23−Pin5)
② PLAREA
(J02−Pin6)
③ RECDATA
(J02−Pin8)

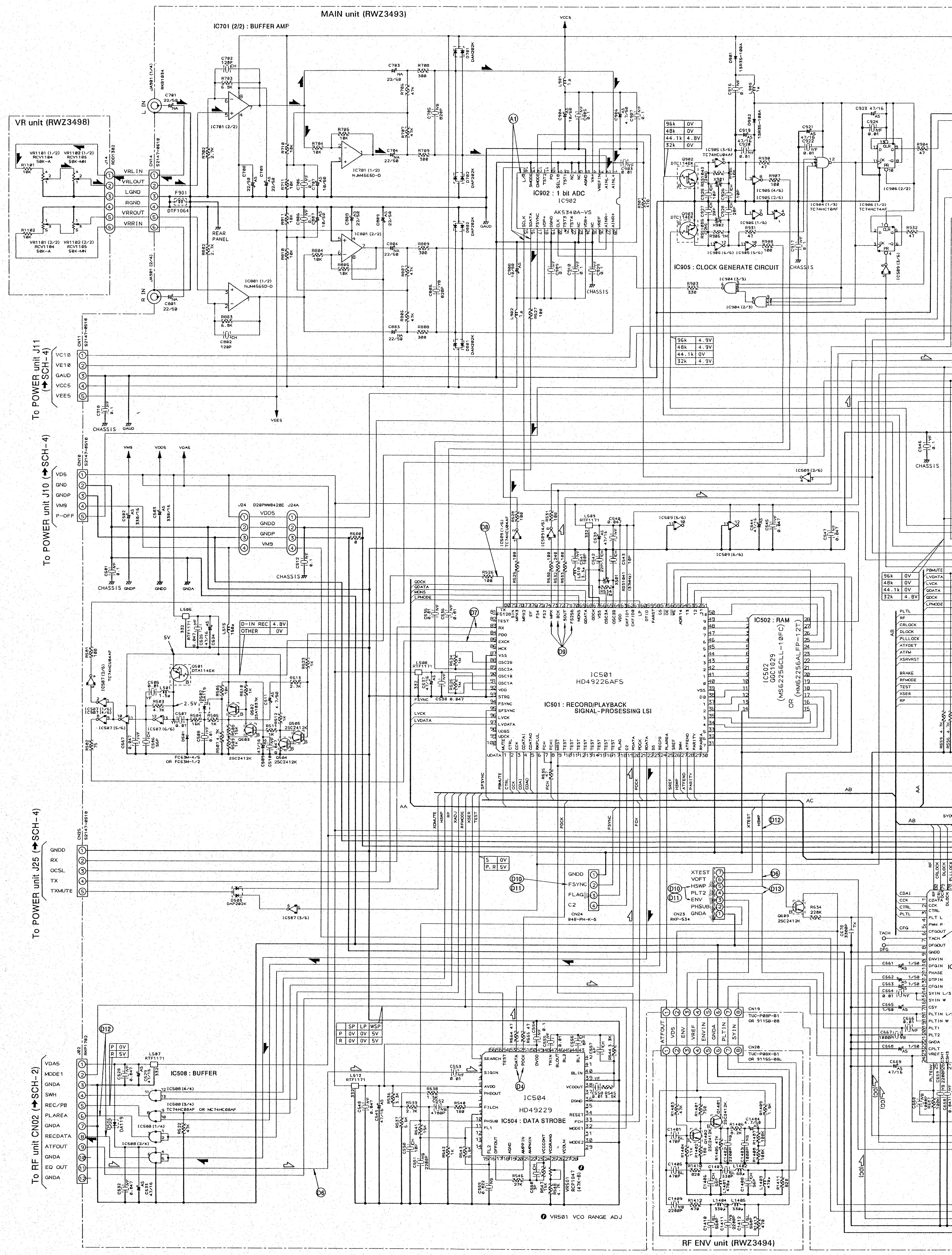
D13



Mode: SP (PLAY)
Test Tape: TY7111

① HSWP
(CN23−Pin5)
5Vdiv., 5mS/div.
② PLT2
(CN23−Pin4)
0.1Vdiv., 5mS/div.

The waveforms D8 and D14 are shown on page 2−25 and page 2−26.

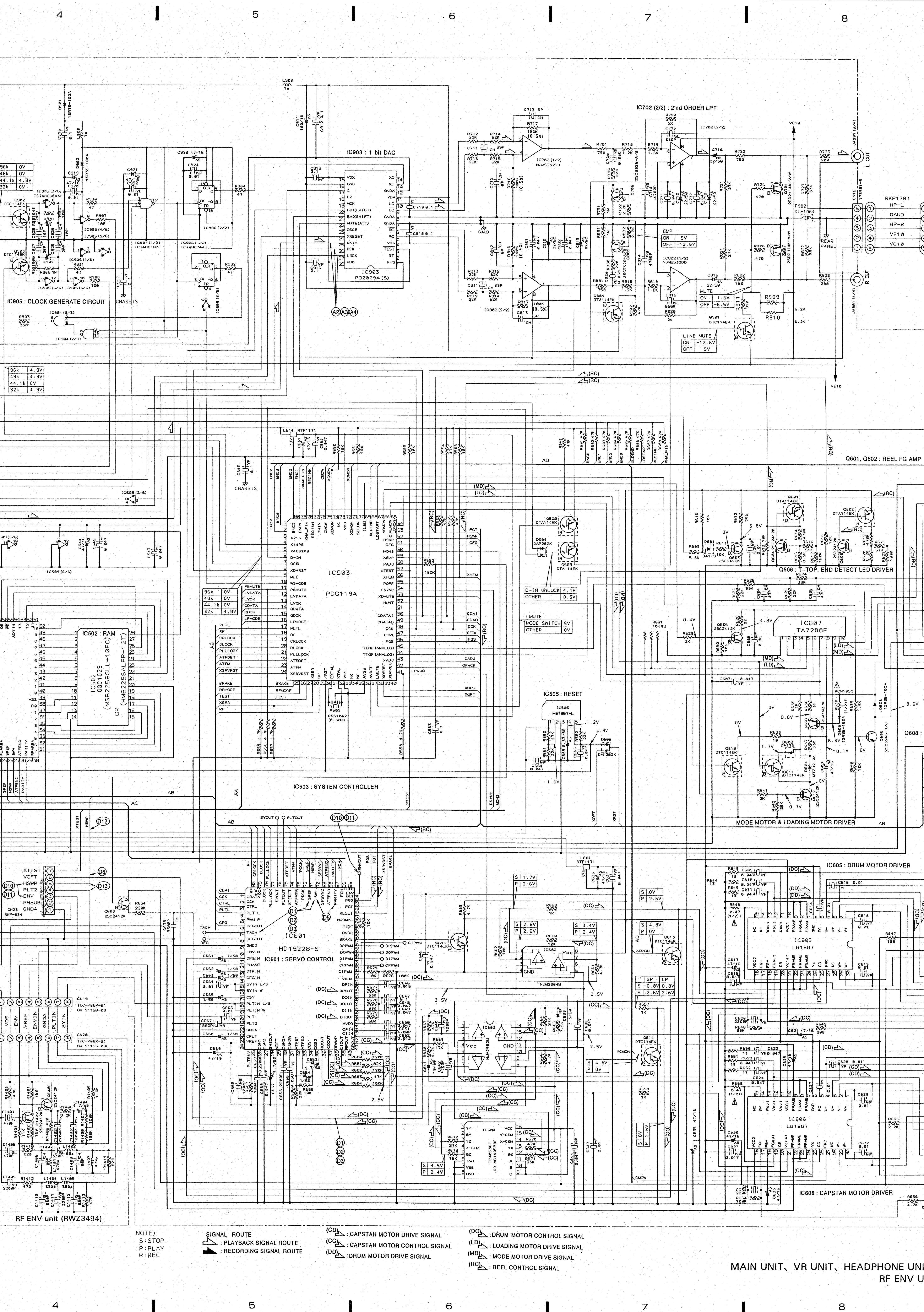

MAIN unit (RWZ3493)
IC701 (2/2) : BUFFER AMP
VR unit (RWZ3498)
VR1101 (1/2) RCV1104 50K-A
VR1102 (1/2) RCV1105 50K-MN
VR1101 (2/2) RCV1104 50K-A
VR1102 (2/2) RCV1105 50K-MN
VRLIN
VRLOUT
LGND
RGND
VRROUT
VRRIN
L IN
R IN
JA901
REAR PANEL
F901 DTF1064
IC701 (1/2) NJM4565D-D
IC801 (2/2)
IC801 (1/2) NJM4565D-D
IC902 : 1 bit ADC
IC902
AK5340A-VS
VCC5
VEE5
GAUD
CHASSIS
IC905 : CLOCK GENERATE CIRCUIT
IC984 (1/3) TC74HC10AF
IC906 (1/2) TC74HC74AF
IC906 (2/2)
96k 0V
48k 0V
44.1k 4.8V
32k 0V
96k 4.9V
48k 4.9V
44.1k 0V
32k 4.9V
To POWER unit J11 (SCH-4)
VC10
VE10
GAUD
VCC5
VEE5
To POWER unit J10 (SCH-4)
VD5
GND
GNDP
VM9
P-OFF
J24 D20PWW0420E J24A
VDD5
GNDD
GNDP
VM9
VM9
VDD5
VDA5
CHASSIS GNDP GNDD GNDA
D-IN REC 4.8V
OTHER 0V
5V
Q501 DTA114EK
2.5V
FC63M-4/S OR FC63M-1/2
2SC2412K
IC501
HD49226AFS
IC501 : RECORD/PLAYBACK SIGNAL-PROSESSING LSI
IC502 : RAM
IC502 GGC1029 (MS6225CLL-10FC) OR (HM62256ALFP-12T)
To POWER unit J25 (SCH-4)
GNDD
RX
OCSL
TX
TXMUTE
S 0V
P. R 5V
GNDD
FSYNC
FLAG
C2
CN24 B4B-PH-K-S
XTEST
VOFT
HSWP
PLT2
ENV
PHSUB
GNDA
CN23 RKP-534
Q609 2SC2412K
SP LP WSP
P 0V 0V 5V
R 0V 0V 5V
P 0V
R 5V
IC508 : BUFFER
TC74HC08AF OR MC74HC08AF
To RF unit CN02 (SCH-2)
VDA5
MODE1
GNDA
SWH
REC/PB
PLAREA
GNDA
RECDATA
ATFOUT
GNDA
EQ OUT
GNDA
IC504
HD49229
IC504 : DATA STROBE
VR501 VCO RANGE ADJ
CN19 TUC-P08P-B1 OR 91150-08
CN20 TUC-P08X-B1 OR 91155-08L
ATFOUT
VD5
ENV
VREF
ENVIN
GNDA
PLTIN
SYIN
RF ENV unit (RWZ3494)
96k 0V
48k 0V
44.1k 0V
32k 4.8V
1
2
3
4
5
A
B
C
D
E
F

NOTE)
S:STOP
P:PLAY
R:REC

SIGNAL ROUTE
▷ : PLAYBACK SIGN
◣ : RECORDING SIG

SCH－3

MAIN UNIT、VR UNIT、HEADPHONE UNIT、
RF ENV UNIT

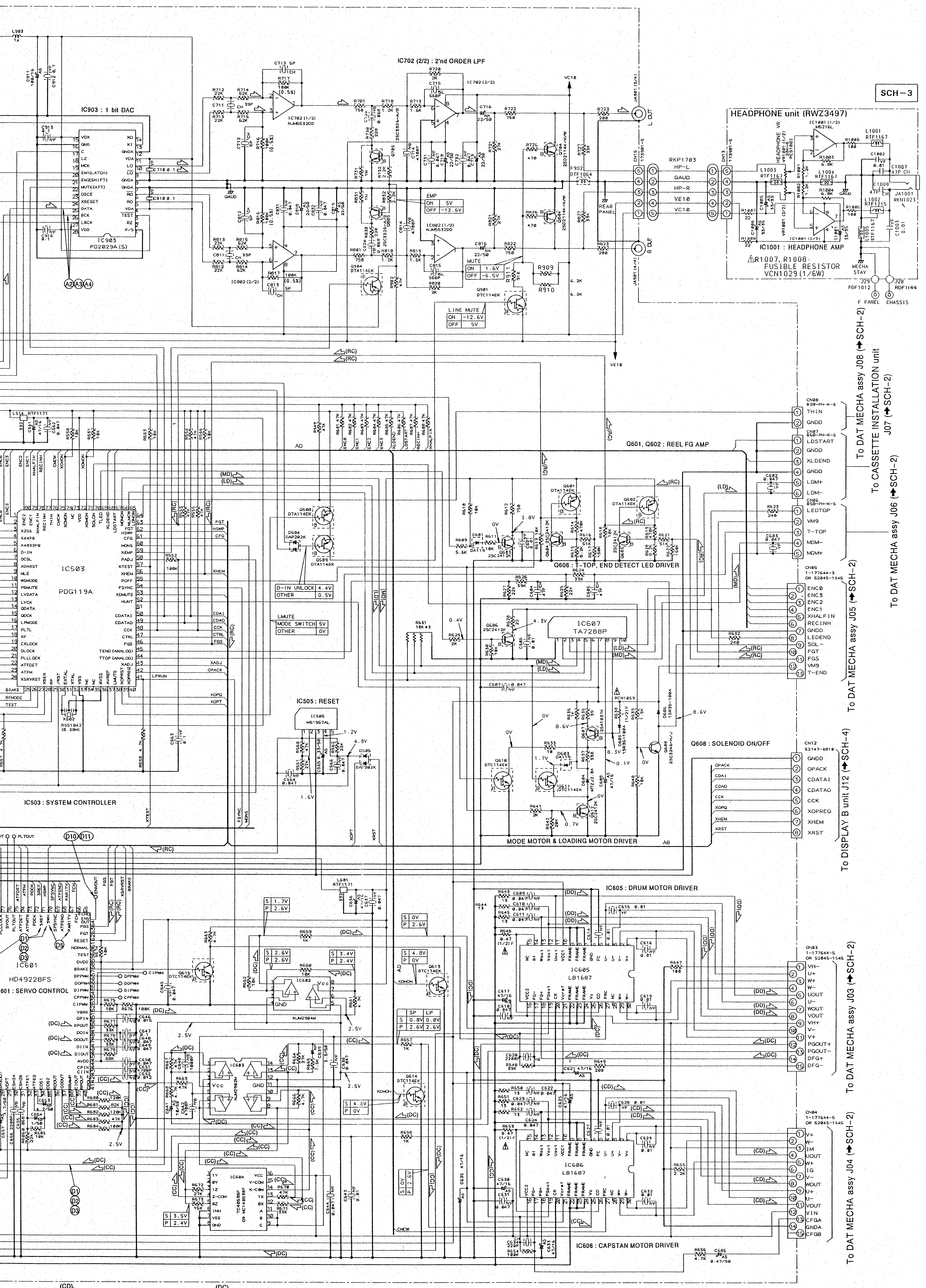

4
5
6
7
8
IC903 : 1 bit DAC
PD2029A(S)
IC702 (2/2) : 2'nd ORDER LPF
NJM5532DD
IC905 : CLOCK GENERATE CIRCUIT
TC74HCU04AF
TC74HC10AF
TC74HC74AF
RKP1703
HP-L
GAUD
HP-R
VE10
VC10
L OUT
R OUT
REAR PANEL
EMP
ON 5V
OFF -12.6V
MUTE
ON 1.6V
OFF -6.5V
LINE MUTE
ON -12.6V
OFF 5V
96k 4.9V
48k 4.9V
44.1k 0V
32k 4.9V
96k 0V
48k 0V
44.1k 0V
32k 4.8V
IC503
PDG119A
IC503 : SYSTEM CONTROLLER
IC502 : RAM
GGC1029
(MS5256CLL-10FC)
OR
(HM62256ALFP-12T)
D-IN UNLOCK 4.4V
OTHER 0.5V
LMUTE
MODE SWITCH 5V
OTHER 0V
IC505 : RESET
M51957AL
Q601, Q602 : REEL FG AMP
Q606 : T-TOP, END DETECT LED DRIVER
IC607
TA7288P
Q608
MODE MOTOR & LOADING MOTOR DRIVER
IC601
HD49228FS
IC601 : SERVO CONTROL
IC602
NJM2904M
IC603
NJM2902M
IC604
TC4053BF
OR HC4053F
IC605 : DRUM MOTOR DRIVER
IC605
LB1687
IC606
LB1687
IC606 : CAPSTAN MOTOR DRIVER
CN19
TUC-P08P-B1
OR 9115B-08
CN20
TUC-P08X-B1
OR 9115S-08L
CN23
RKP-534
RF ENV unit (RWZ3494)

NOTE)
S : STOP
P : PLAY
R : REC

SIGNAL ROUTE
: PLAYBACK SIGNAL ROUTE
: RECORDING SIGNAL ROUTE

(CD) : CAPSTAN MOTOR DRIVE SIGNAL
(CC) : CAPSTAN MOTOR CONTROL SIGNAL
(DD) : DRUM MOTOR DRIVE SIGNAL
(DC) : DRUM MOTOR CONTROL SIGNAL
(LD) : LOADING MOTOR DRIVE SIGNAL
(MD) : MODE MOTOR DRIVE SIGNAL
(RC) : REEL CONTROL SIGNAL

MAIN UNIT、VR UNIT、HEADPHONE UNI
RF ENV U



6
7
8
9
A
B
C
D
E
F
SCH-3
IC903 : 1 bit DAC
IC903 PD2029A(S)
IC702 (2/2) : 2'nd ORDER LPF
IC702 (1/2) NJM5532DD
IC802 (1/2) NJM5532DD
IC802 (2/2)
EMP
ON 5V
OFF -12.6V
MUTE
ON 1.6V
OFF -6.5V
LINE MUTE
ON -12.6V
OFF 5V
L OUT
R OUT
JA901
VC10
VE10
REAR PANEL
RKP1703
HP-L
GAUD
HP-R
VE10
VC10
HEADPHONE unit (RWZ3497)
IC1001 : HEADPHONE AMP
R1007, R1008 : FUSIBLE RESISTOR VCN1029(1/6W)
JA1001 RKN1023
MECHA STAY
J29 PDF1012
J28 RDF1144
F PANEL
CHASSIS
Q601, Q602 : REEL FG AMP
Q606 : T-TOP, END DETECT LED DRIVER
IC503
PDG119A
IC503 : SYSTEM CONTROLLER
D-IN UNLOCK 4.4V
OTHER 0.5V
LMUTE
MODE SWITCH 5V
OTHER 0V
IC607 TA7288P
IC505 : RESET
IC505 M51957AL
Q608 : SOLENOID ON/OFF
MODE MOTOR & LOADING MOTOR DRIVER
IC605 : DRUM MOTOR DRIVER
IC605 LB1687
IC606 LB1687
IC606 : CAPSTAN MOTOR DRIVER
IC601 HD49228FS
IC601 : SERVO CONTROL
IC602 NJM2904M
IC603 NJM2904M
IC604 TC4053BF OR MC14053BF
CN00 THIN GNDD
To DAT MECHA assy J08 (→SCH-2)
CN07 LDSTART GNDD XLDEND GNDD LDM+ LDM-
To CASSETTE INSTALLATION unit J07 (→SCH-2)
CN06 LEDTOP VM9 T-TOP MDM- MDM+
To DAT MECHA assy J06 (→SCH-2)
CN05 ENC0 ENC3 ENC2 ENC1 XHALFIN RECINH GNDD LEDEND SOL- FGT FGS VM9 T-END
To DAT MECHA assy J05 (→SCH-2)
CN12 GNDD OPACK CDATAI CDATAO CCK XOPREQ XHEM XRST
To DISPLAY B unit J12 (→SCH-4)
CN03 VH- U+ V+ W- UOUT U- WOUT VOUT VH+ V- V+ PGOUT+ PGOUT- DFG+ DFG-
To DAT MECHA assy J03 (→SCH-2)
CN04 V+ W- IM UOUT W+ IG V- WOUT U+ U- VOUT VIN CFGA GNDA CFGB
To DAT MECHA assy J04 (→SCH-2)

AL ROUTE
NAL ROUTE

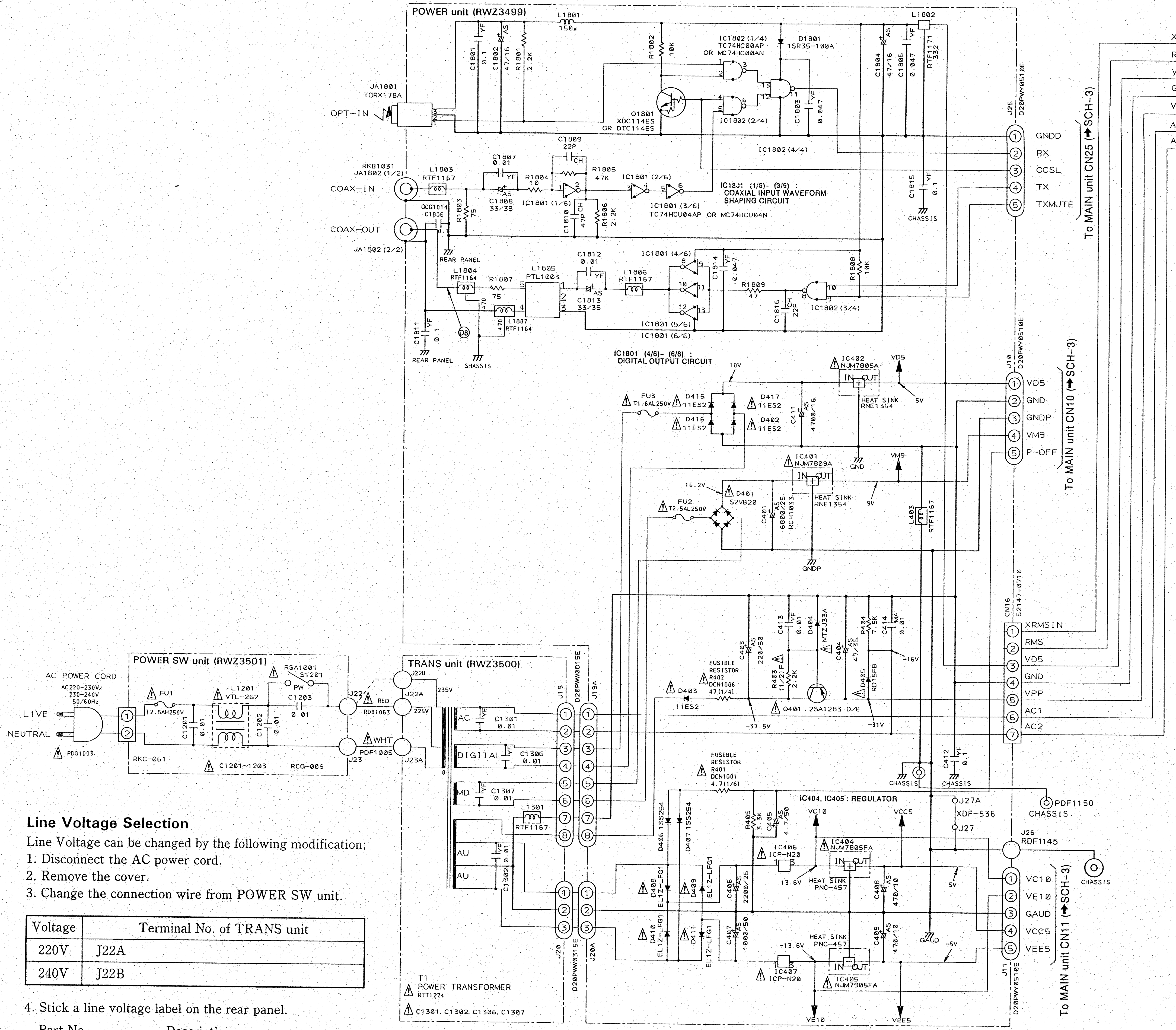
(CD) : CAPSTAN MOTOR DRIVE SIGNAL
(CC) : CAPSTAN MOTOR CONTROL SIGNAL
(DD) : DRUM MOTOR DRIVE SIGNAL

(DC) : DRUM MOTOR CONTROL SIGNAL
(LD) : LOADING MOTOR DRIVE SIGNAL
(MD) : MODE MOTOR DRIVE SIGNAL
(RC) : REEL CONTROL SIGNAL

MAIN UNIT、VR UNIT、HEADPHONE UNIT、
RF ENV UNIT

SCH－3

4. DISPLAY A UNIT、DISPLAY B UNIT、POWER UNIT、TRANS UNIT、POWER SW UNIT


POWER unit (RWZ3499)
L1801 150µ
C1801 0.1 YF
C1802 47/16 AS
R1801 2.2K
R1802 10K
IC1802 (1/4) TC74HC00AP OR MC74HC00AN
D1801 1SR35-100A
Q1801 XDC114ES OR DTC114ES
IC1802 (2/4)
IC1802 (4/4)
C1803 0.047 YF
C1804 47/16 AS
C1805 0.047 YF
RTF1171 332
L1802
JA1801 TORX178A
OPT-IN
J25 D20PWY0510E
GNDD
RX
OCSL
TX
TXMUTE
To MAIN unit CN25 (→SCH-3)
RKB1031 JA1802 (1/2)
COAX-IN
L1803 RTF1167
C1807 0.01 YF
C1809 22P CH
R1804 10
R1805 47K
IC1801 (2/6)
C1808 33/35 AS
IC1801 (1/6)
C1810 47P CH
R1806 2.2K
IC1801 (3/6)
IC1801 (1/6)-(3/6) : COAXIAL INPUT WAVEFORM SHAPING CIRCUIT
TC74HCU04AP OR MC74HCU04N
C1815 0.1 YF
CHASSIS
COAX-OUT
OCG1014 C1806
R1803 75
JA1802 (2/2)
REAR PANEL
L1804 RTF1164
R1807 75
L1805 PTL1003
C1812 0.01 YF
C1813 33/35 AS
L1806 RTF1167
IC1801 (4/6)
C1814 0.047 YF
R1809 47
R1808 10K
C1816 22P CH
IC1802 (3/4)
IC1801 (5/6)
IC1801 (6/6)
L1807 RTF1164
C1811 0.1 YF
REAR PANEL
SHASSIS
IC1801 (4/6)-(6/6) : DIGITAL OUTPUT CIRCUIT
IC402 NJM7805A
VD5
10V
HEAT SINK RNE1354
5V
FU3 T1.6AL250V
D415 11ES2
D416 11ES2
D417 11ES2
D402 11ES2
C411 4700/16 AS
J10 D20PWY0510E
VD5
GND
GNDP
VM9
P-OFF
To MAIN unit CN10 (→SCH-3)
IC401 NJM7809A
VM9
GND
16.2V
D401 S2VB20
FU2 T2.5AL250V
C401 6800/25 RCH1033 AS
HEAT SINK RNE1354
9V
L403 RTF1167
GNDP
CN16 52147-0710
XRMSIN
RMS
VD5
GND
VPP
AC1
AC2
C403 220/50 AS
C413 0.01 YF
D404 MTZJ33A
R404 7.5K
C414 0.01 MA
FUSIBLE RESISTOR R402 DCN1006 47(1/4)
R403 (1/2) 2.2K
C404 47/35 AS
D405 RD15FB
-16V
D403 11ES2
Q401 2SA1283-D/E
-37.5V
-31V
POWER SW unit (RWZ3501)
AC POWER CORD AC220-230V/ 230-240V 50/60Hz
RSA1001 S1201 PW
FU1 T2.5AH250V
L1201 VTL-262
C1201 0.01
C1202 0.01
C1203 0.01
LIVE
NEUTRAL
PDG1003
RKC-061
C1201~1203 RCG-009
TRANS unit (RWZ3500)
J22B
J22A
J22
235V
225V
RED RDB1063
WHT PDF1005
J23
J23A
J19 D20PWW0815E
J19A
AC
C1301 0.01 YF
DIGITAL
C1306 0.01 YF
MD
C1307 0.01 YF
L1301 RTF1167
AU
AU
C1302 0.01 YF
J20 D20PWW0315E
J20A
T1 POWER TRANSFORMER RTT1274
C1301, C1302, C1306, C1307
C412 0.1 YF
CHASSIS
CHASSIS
FUSIBLE RESISTOR R401 DCN1001 4.7(1/6)
IC404, IC405 : REGULATOR
J27A XDF-536
J27
PDF1150 CHASSIS
J26 RDF1145
CHASSIS
D406 1SS254
D407 1SS254
R405 3.3K
C405 4.7/50 AS
VC10
VCC5
IC404 NJM7805FA
IC406 ICP-N20
13.6V
HEAT SINK PNC-457
5V
C408 470/10 AS
D408 EL1Z-LFG1
D409 EL1Z-LFG1
C406 2200/25 AS
D410 EL1Z-LFG1
D411 EL1Z-LFG1
C407 1000/50 AS
-13.6V
HEAT SINK PNC-457
C409 470/10 AS
GAUD
-5V
IC407 ICP-N20
IC405 NJM7905FA
VE10
VEE5
J11 D20PWY0510E
VC10
VE10
GAUD
VCC5
VEE5
To MAIN unit CN11 (→SCH-3)

Line Voltage Selection

Line Voltage can be changed by the following modification:

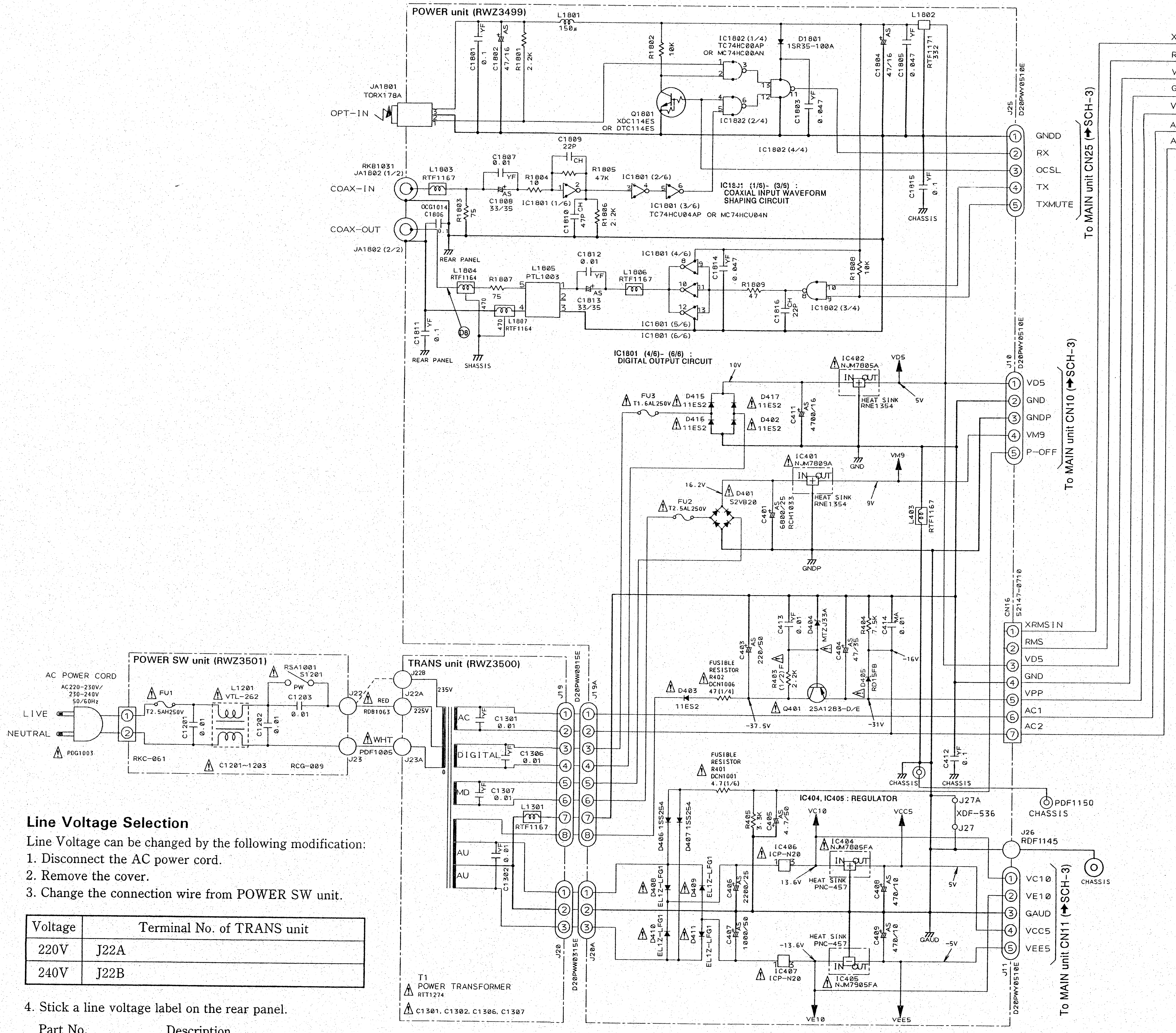
1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection wire from POWER SW unit.

Voltage	Terminal No. of TRANS unit
220V	J22A
240V	J22B

4. Stick a line voltage label on the rear panel.

Part No.	Description
AAX−193	220V label
AAX−192	240V label

4. DISPLAY A UNIT、DISPLAY B UNIT、POWER UNIT、TRANS UNIT、POWER SW UNIT


POWER unit (RWZ3499)
L1801 150μ
C1801 0.1
C1802 47/16
R1801 2.2K
R1802 10K
IC1802 (1/4) TC74HC00AP OR MC74HC00AN
D1801 1SR35-100A
C1804 47/16
C1805 0.047
RTF1171 332
L1802
JA1801 TORX178A
OPT-IN
Q1801 XDC114ES OR DTC114ES
IC1802 (2/4)
C1803 0.047
IC1802 (4/4)
J25 D20PWY0510E
GNDD
RX
OCSL
TX
TXMUTE
To MAIN unit CN25 (➡SCH-3)
RKB1031 JA1802 (1/2)
COAX-IN
L1803 RTF1167
C1807 0.01
C1809 22P
R1804 10
R1805 47K
IC1801 (2/6)
C1808 33/35
IC1801 (1/6)
C1810 47P
R1806 2.2K
IC1801 (3/6)
IC1801 (1/6)-(3/6) : COAXIAL INPUT WAVEFORM SHAPING CIRCUIT
TC74HCU04AP OR MC74HCU04N
C1815 0.1
CHASSIS
COAX-OUT
OCG1014 C1806 0.1
R1803 75
JA1802 (2/2)
REAR PANEL
L1804 RTF1164
R1807 75
L1805 PTL1003
C1812 0.01
C1813 33/35
L1806 RTF1167
IC1801 (4/6)
C1814 0.047
R1809 47
C1816 22P
R1808 10K
IC1802 (3/4)
L1807 RTF1164
C1811 0.1
REAR PANEL
CHASSIS
IC1801 (5/6)
IC1801 (6/6)
IC1801 (4/6)-(6/6) : DIGITAL OUTPUT CIRCUIT
J10 D20PWY0510E
IC402 NJM7805A
VD5
HEAT SINK RNE1354
5V
10V
FU3 T1.6AL250V
D415 11ES2
D416 11ES2
D417 11ES2
D402 11ES2
C411 4700/16
VD5
GND
GNDP
VM9
P-OFF
To MAIN unit CN10 (➡SCH-3)
IC401 NJM7809A
VM9
GND
16.2V
D401 S2VB20
FU2 T2.5AL250V
C401 6800/25 RCH1033
HEAT SINK RNE1354
9V
L403 RTF1167
GNDP
CN16 52147-0710
C413 0.01
D404 MTZJ33A
R404 7.5K
C414 0.01
C403 220/50
C404 47/35
FUSIBLE RESISTOR R402 DCN1006 47(1/4)
R403 (1/2) 2.2K
D405 RD15FB
-16V
D403 11ES2
Q401 2SA1283-D/E
-37.5V
-31V
XRMSIN
RMS
VD5
GND
VPP
AC1
AC2
POWER SW unit (RWZ3501)
AC POWER CORD AC220-230V/ 230-240V 50/60Hz
LIVE
NEUTRAL
PDG1003
FU1 T2.5AH250V
L1201 VTL-262
RSA1001 S1201 PW
C1203 0.01
C1201 0.01
C1202 0.01
RKC-061
C1201~1203
RCG-009
J22
RED
RDB1063
WHT
PDF1005
J23
TRANS unit (RWZ3500)
J22B
J22A
235V
225V
J23A
AC
C1301 0.01
DIGITAL
C1306 0.01
MD
C1307 0.01
L1301 RTF1167
AU
AU
C1302 0.01
J19 D20PWW0815E
J19A
J20 D20PWW0315E
J20A
T1 POWER TRANSFORMER RTT1274
C1301, C1302, C1306, C1307
C412 0.1
CHASSIS
CHASSIS
FUSIBLE RESISTOR R401 DCN1001 4.7(1/6)
IC404, IC405 : REGULATOR
VC10
VCC5
J27A XDF-536
J27
PDF1150 CHASSIS
J26 RDF1145
CHASSIS
R405 3.3K
C405 4.7/50
D406 1SS254
D407 1SS254
IC406 ICP-N20
IC404 NJM7805FA
13.6V
HEAT SINK PNC-457
5V
D408 EL1Z-LFG1
D409 EL1Z-LFG1
C406 2200/25
C408 470/10
D410 EL1Z-LFG1
D411 EL1Z-LFG1
C407 1000/50
-13.6V
HEAT SINK PNC-457
C409 470/10
GAUD
-5V
IC407 ICP-N20
IC405 NJM7905FA
VE10
VEE5
J11 D20PWY0510E
VC10
VE10
GAUD
VCC5
VEE5
To MAIN unit CN11 (➡SCH-3)

Line Voltage Selection

Line Voltage can be changed by the following modification:

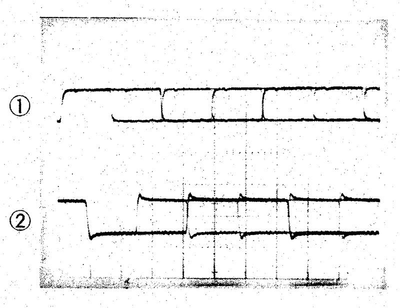
1. Disconnect the AC power cord.
2. Remove the cover.
3. Change the connection wire from POWER SW unit.

Voltage	Terminal No. of TRANS unit
220V	J22A
240V	J22B

4. Stick a line voltage label on the rear panel.

Part No.	Description
AAX−193	220V label
AAX−192	240V label

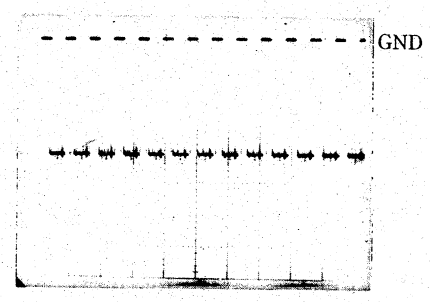
D8



Mode: D−IN (REC)

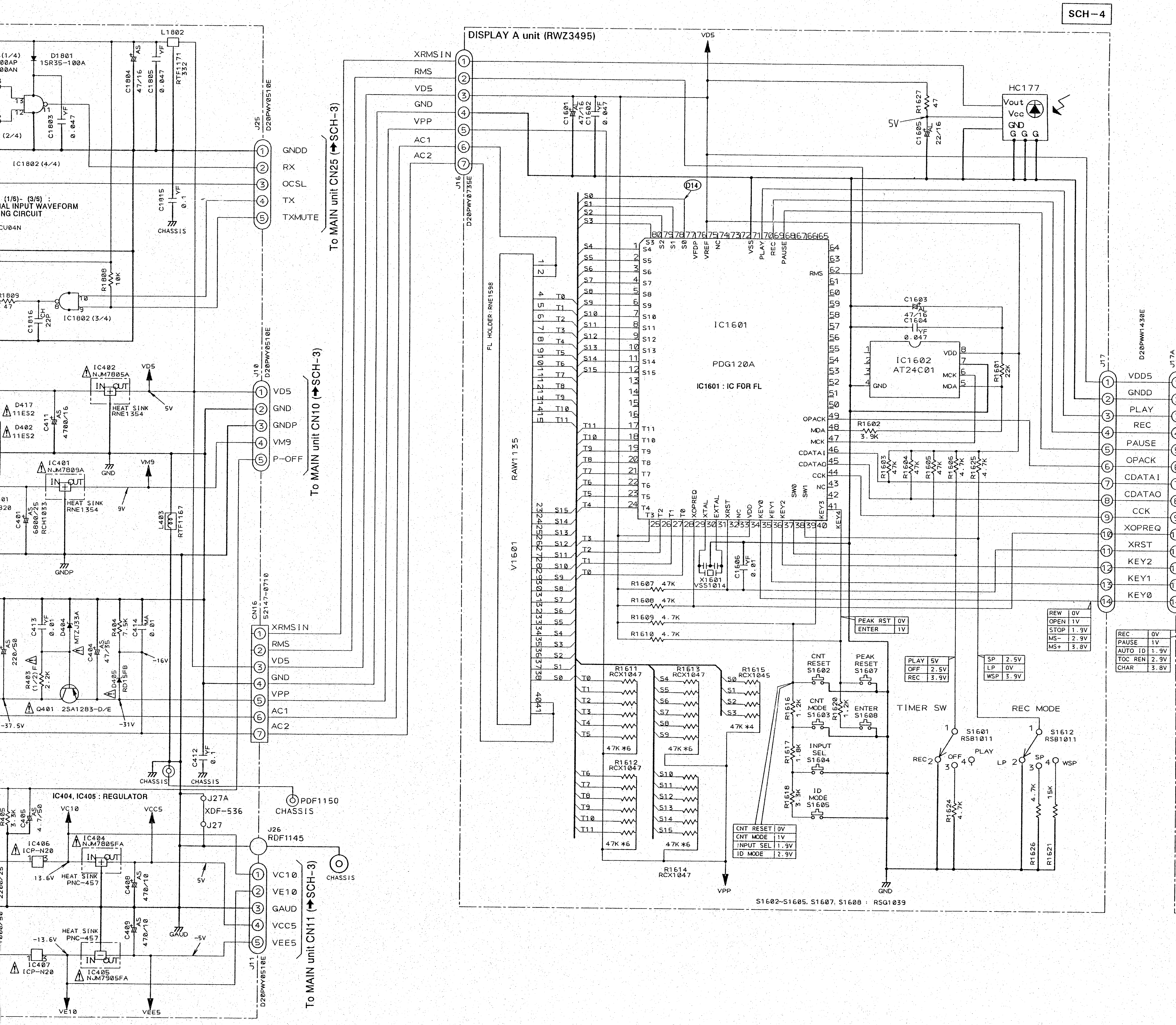
① TX
(IC501−Pin80)
5Vdiv., 0.1μS/div.
② COAX OUT
(JA504)
1Vdiv., 0.1μS/div.

D14

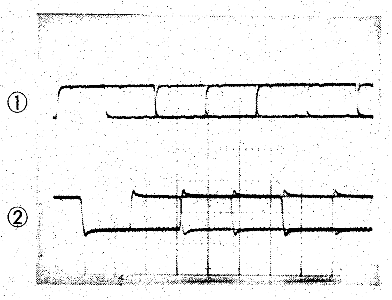


Mode: STOP
10V/div., 2mS/div.

SO (Segment)
(IC1601−Pin50)


SCH−4
DISPLAY A unit (RWZ3495)
XRMSIN
RMS
VD5
GND
VPP
AC1
AC2
J16 D20PWY0735E
J25 D20PWY0510E
GNDD
RX
OCSL
TX
TXMUTE
To MAIN unit CN25 (➡SCH−3)
J10 D20PWY0510E
VD5
GND
GNDP
VM9
P−OFF
To MAIN unit CN10 (➡SCH−3)
CN16 52147−0710
To MAIN unit CN11 (➡SCH−3)
J11 D20PWY0510E
VC10
VE10
GAUD
VCC5
VEE5
D14
IC1601
PDG120A
IC1601 : IC FOR FL
IC1602
AT24C01
HC177
FL HOLDER RNE1598
RAW1135
V1601
X1601 VSS1014
L1802
D1801 1SR35−100A
IC1802 (4/4)
IC1802 (3/4)
IC402 NJM7805A
IC401 NJM7809A
HEAT SINK RNE1354
IC404, IC405 : REGULATOR
IC404 NJM7805FA
IC405 NJM7905FA
IC406 ICP−N20
IC407 ICP−N20
HEAT SINK PNC−457
Q401 2SA1283−D/E
J27A XDF−536
J27
J26 RDF1145
PDF1150 CHASSIS
CHASSIS
GNDP
VE10
VEE5
J17 D20PWY1430E
VDD5
GNDD
PLAY
REC
PAUSE
OPACK
CDATAI
CDATAO
CCK
XOPREQ
XRST
KEY2
KEY1
KEY0
CNT RESET S1602
PEAK RESET S1607
CNT MODE S1603
ENTER S1608
INPUT SEL S1604
ID MODE S1605
TIMER SW
S1601 RSB1011
REC MODE
S1612 RSB1011
PEAK RST 0V
ENTER 1V
CNT RESET 0V
CNT MODE 1V
INPUT SEL 1.9V
ID MODE 2.9V
PLAY 5V
OFF 2.5V
REC 3.9V
SP 2.5V
LP 0V
WSP 3.9V
REW 0V
OPEN 1V
STOP 1.9V
MS− 2.9V
MS+ 3.8V
REC 0V
PAUSE 1V
AUTO ID 1.9V
TOC REN 2.9V
CHAR 3.8V
VPP
GND
S1602~S1605, S1607, S1608 : RSG1039

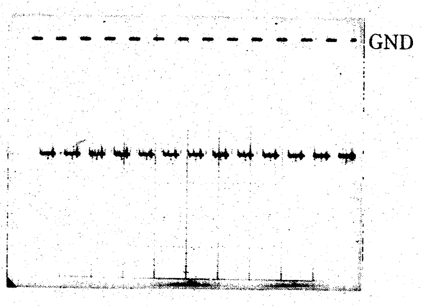
D8



Mode: D－IN (REC)

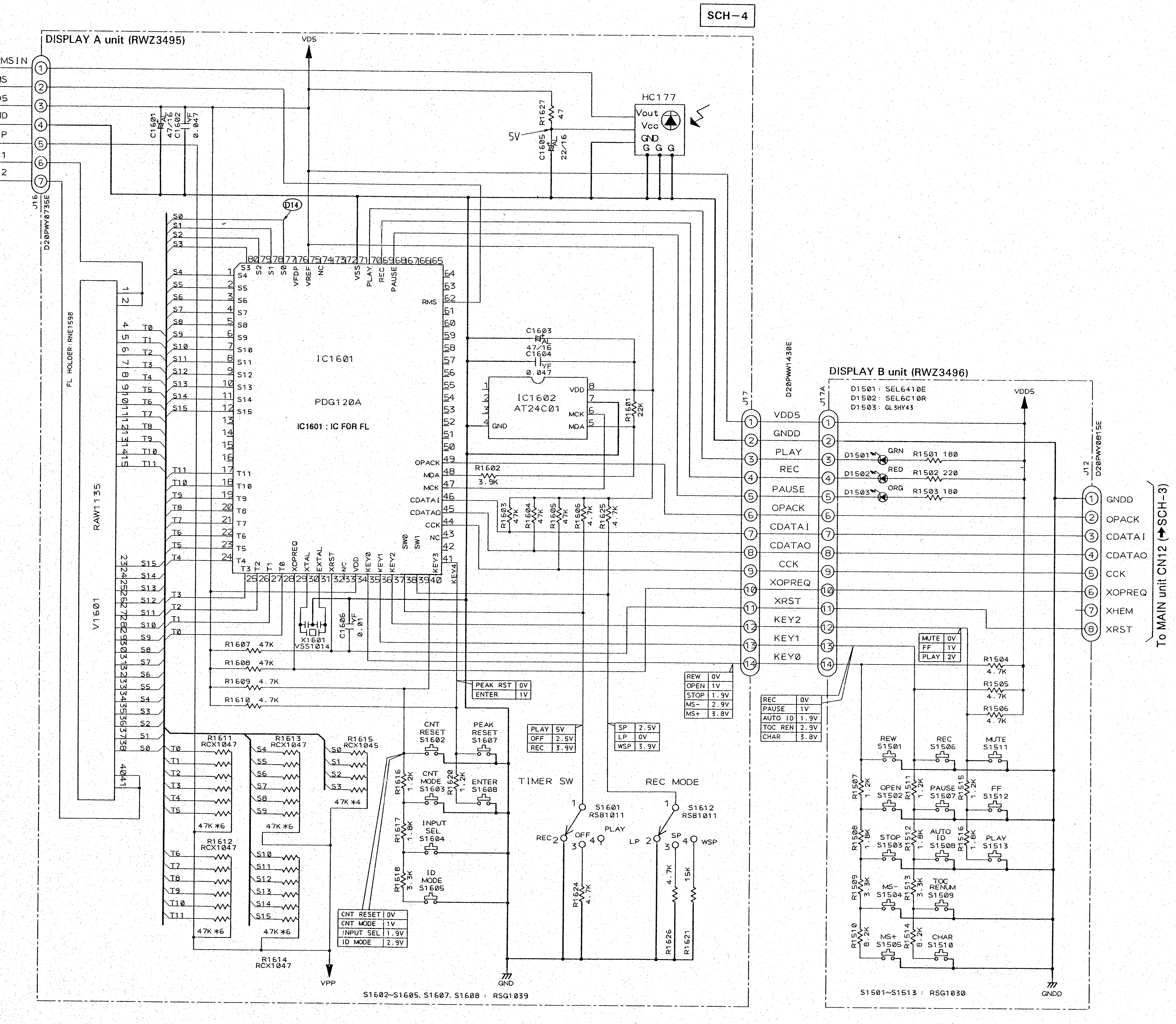
① TX
(IC501－Pin80)
5Vdiv., 0.1μS/div.
② COAX OUT
(JA504)
1Vdiv., 0.1μS/div.

D14



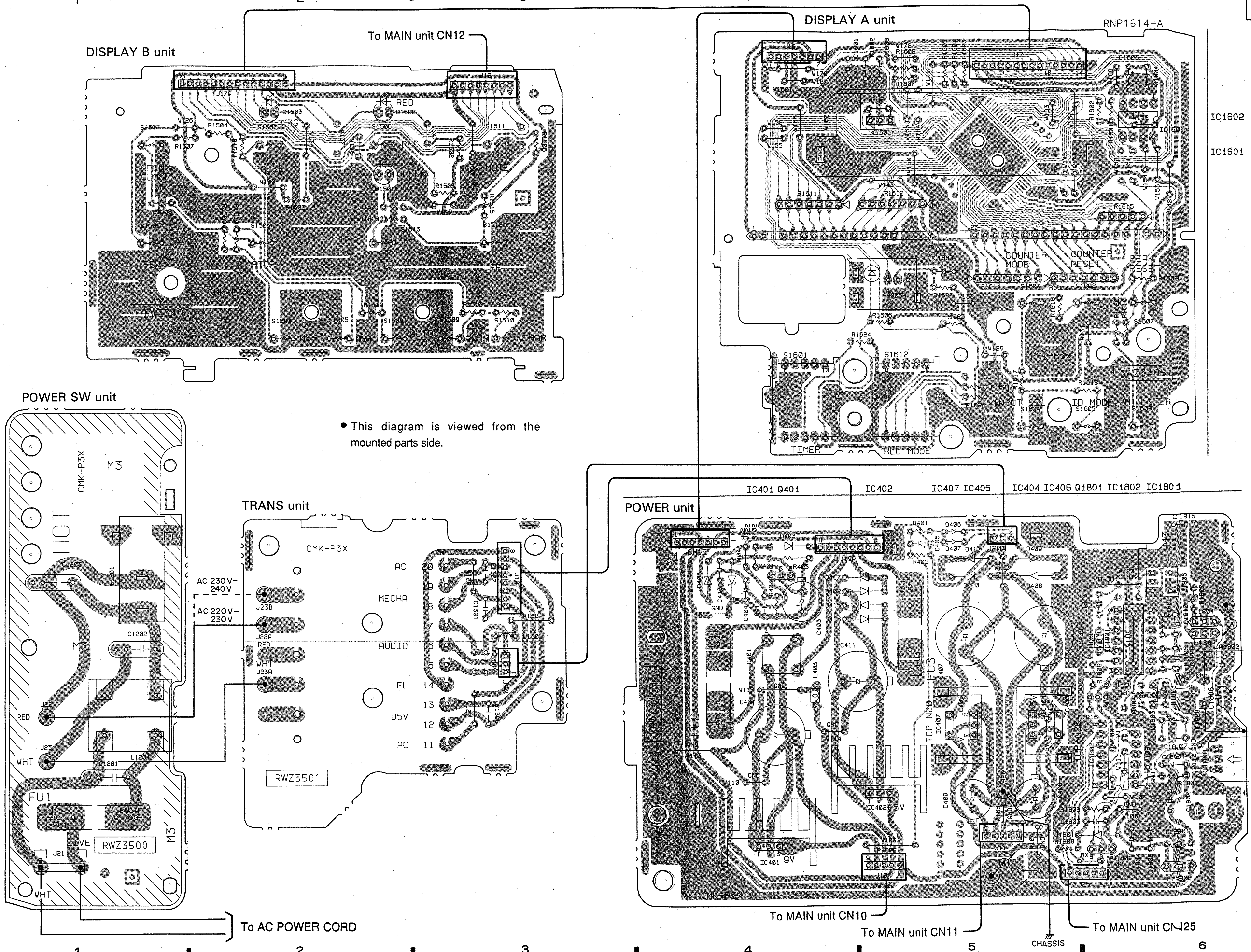
Mode: STOP
10V/div., 2mS/div.

SO (Segment)
(IC1601－Pin50)

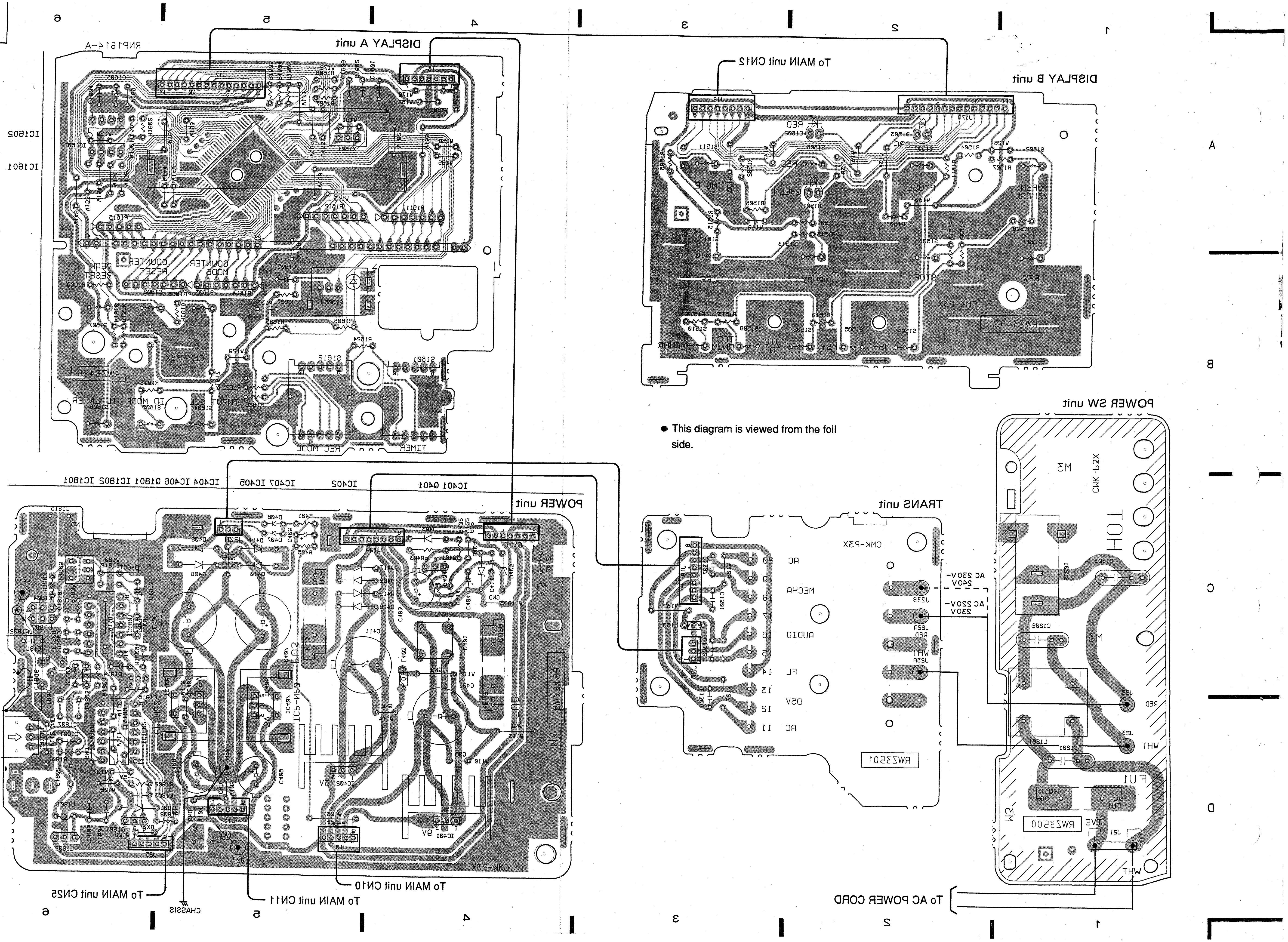

SCH－4
DISPLAY A unit (RWZ3495)
MSIN
J16
D20PWY0735E
VDD5
HC177
Vout
Vcc
GND
C1601
C1602
R1627 47
C1605 22/16
5V
D14
IC1601
PDG120A
IC1601 : IC FOR FL
FL HOLDER RNE1598
RAW1135
V1601
C1603 47/16
C1604 0.047
IC1602
AT24C01
R1601 22K
R1602 3.9K
R1603 47K
R1604 47K
R1605 47K
R1606 4.7K
R1625 4.7K
X1601 VSS1014
C1606 0.01
R1607 47K
R1608 47K
R1609 4.7K
R1610 4.7K
R1611 RCX1047
R1612 RCX1047
R1613 RCX1047
R1614 RCX1047
R1615 RCX1045
47K ＊6
47K ＊4
PEAK RST 0V
ENTER 1V
CNT RESET S1602
PEAK RESET S1607
CNT MODE S1603
ENTER S1608
INPUT SEL S1604
ID MODE S1605
R1616 1.2K
R1620 1.2K
R1617 1.8K
R1618 3.3K
CNT RESET 0V
CNT MODE 1V
INPUT SEL 1.9V
ID MODE 2.9V
PLAY 5V
OFF 2.5V
REC 3.9V
SP 2.5V
LP 0V
WSP 3.9V
TIMER SW
REC MODE
S1601 RSB1011
S1612 RSB1011
REC
OFF
PLAY
LP
SP
WSP
R1624 4.7K
R1626 4.7K
R1621 15K
REW 0V
OPEN 1V
STOP 1.9V
MS－ 2.9V
MS＋ 3.8V
VPP
GND
S1602～S1605, S1607, S1608 : RSG1039
J17
D20PWW1430E
J17A
VDD5
GNDD
PLAY
REC
PAUSE
OPACK
CDATAI
CDATAO
CCK
XOPREQ
XRST
KEY2
KEY1
KEY0
DISPLAY B unit (RWZ3496)
D1501 : SEL6410E
D1502 : SEL6C10R
D1503 : GL3HY43
GRN
RED
ORG
R1501 180
R1502 220
R1503 180
REC 0V
PAUSE 1V
AUTO ID 1.9V
TOC REN 2.9V
CHAR 3.8V
MUTE 0V
FF 1V
PLAY 2V
R1504 4.7K
R1505 4.7K
R1506 4.7K
REW S1501
REC S1506
MUTE S1511
OPEN S1502
PAUSE S1507
FF S1512
STOP S1503
AUTO ID S1508
PLAY S1513
MS－ S1504
TOC RENUM S1509
MS＋ S1505
CHAR S1510
R1507 1.2K
R1511 1.2K
R1515 1.2K
R1508 1.8K
R1512 1.8K
R1516 1.8K
R1509 3.3K
R1513 3.3K
R1510 8.2K
R1514 8.2K
S1501～S1513 : RSG1030
GNDD
J12
D20PWY0815E
GNDD
OPACK
CDATAI
CDATAO
CCK
XOPREQ
XHEM
XRST
To MAIN unit CN12 (➡SCH-3)

A B C D E F

DISPLAY A UNIT、DISPLAY B UNIT、POWER UNIT、
TRANS UNIT、POWER SW UNIT


1
2
3
4
5
6
A
B
C
D
DISPLAY B unit
To MAIN unit CN12
DISPLAY A unit
RNP1614-A
IC1602
IC1601
OPEN/CLOSE
PAUSE
REC
MUTE
RED
GREEN
ORG
REW
STOP
PLAY
FF
MS-
MS+
AUTO ID
TOC RNUM
CHAR
CMK-P3X
RWZ3496
COUNTER MODE
COUNTER RESET
PEAK RESET
INPUT SEL
ID MODE
ID ENTER
TIMER
REC MODE
RWZ3495
POWER SW unit
HOT
M3
FU1
FU1A
LIVE
RED
WHT
RWZ3500
TRANS unit
AC 230V–240V
AC 220V–230V
AC
MECHA
AUDIO
FL
D5V
RWZ3501
IC401 Q401
IC402
IC407 IC405
IC404 IC406 Q1801 IC1802 IC1801
POWER unit
ICP-N20
RWZ3499
To AC POWER CORD
To MAIN unit CN10
To MAIN unit CN11
CHASSIS
To MAIN unit CN25

● This diagram is viewed from the mounted parts side.

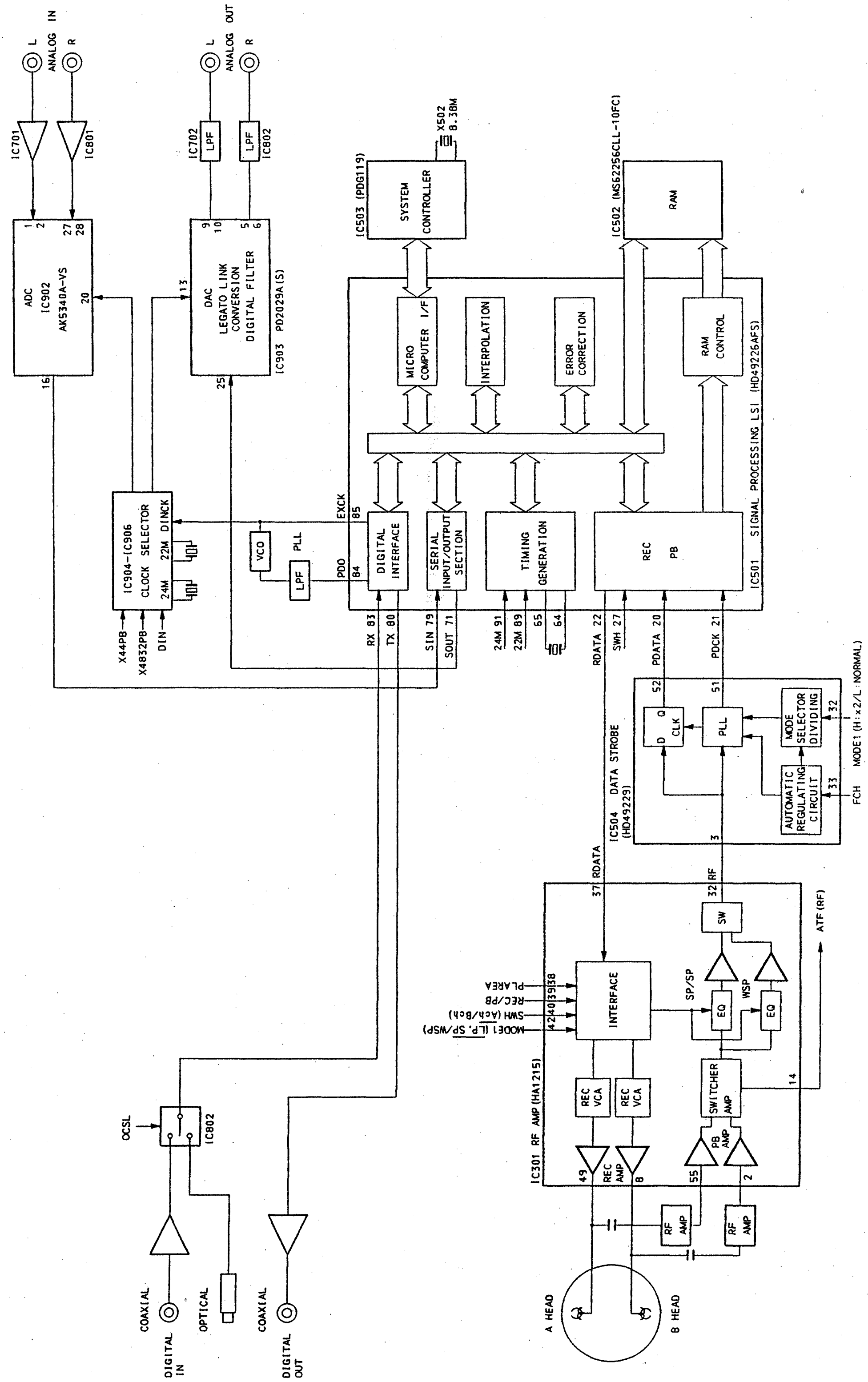


- This diagram is viewed from the foil side.

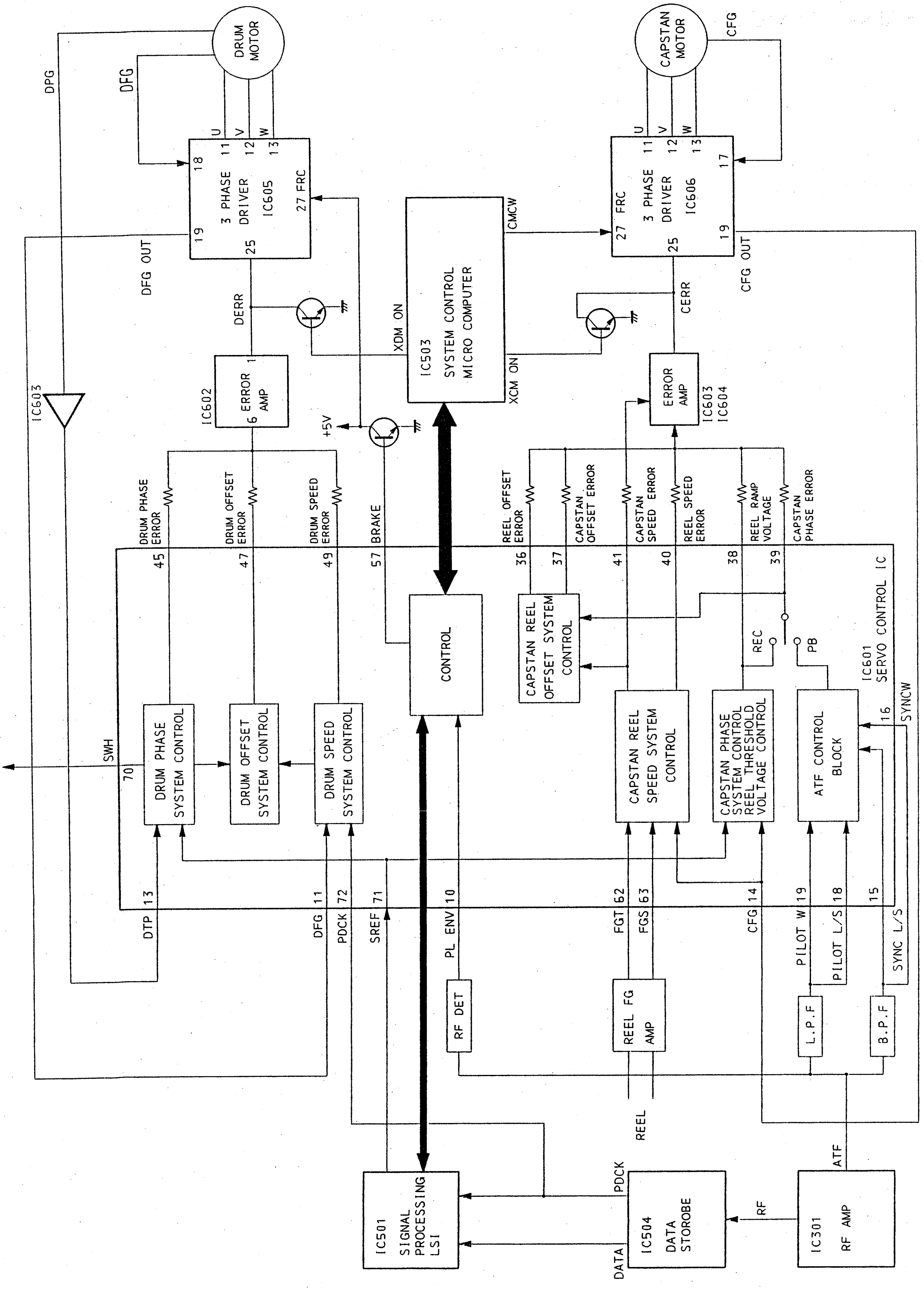
DISPLAY A unit
RNP1614-A
IC1602
IC1601
DISPLAY B unit
To MAIN unit CN12
POWER unit
IC404 IC406 Q1801 IC1802 IC1801
IC407 IC405
IC402
IC401 Q401
TRANS unit
POWER SW unit
AC 230V- 240V
AC 220V- 230V
RED
WHT
To MAIN unit CN25
CHASSIS
To MAIN unit CN11
To MAIN unit CN10
To AC POWER CORD
RW23501
RW23500
RW23496
CMK-P3X
A
B
C
D
1
2
3
4
5
6

2.3 BLOCK DIAGRAM

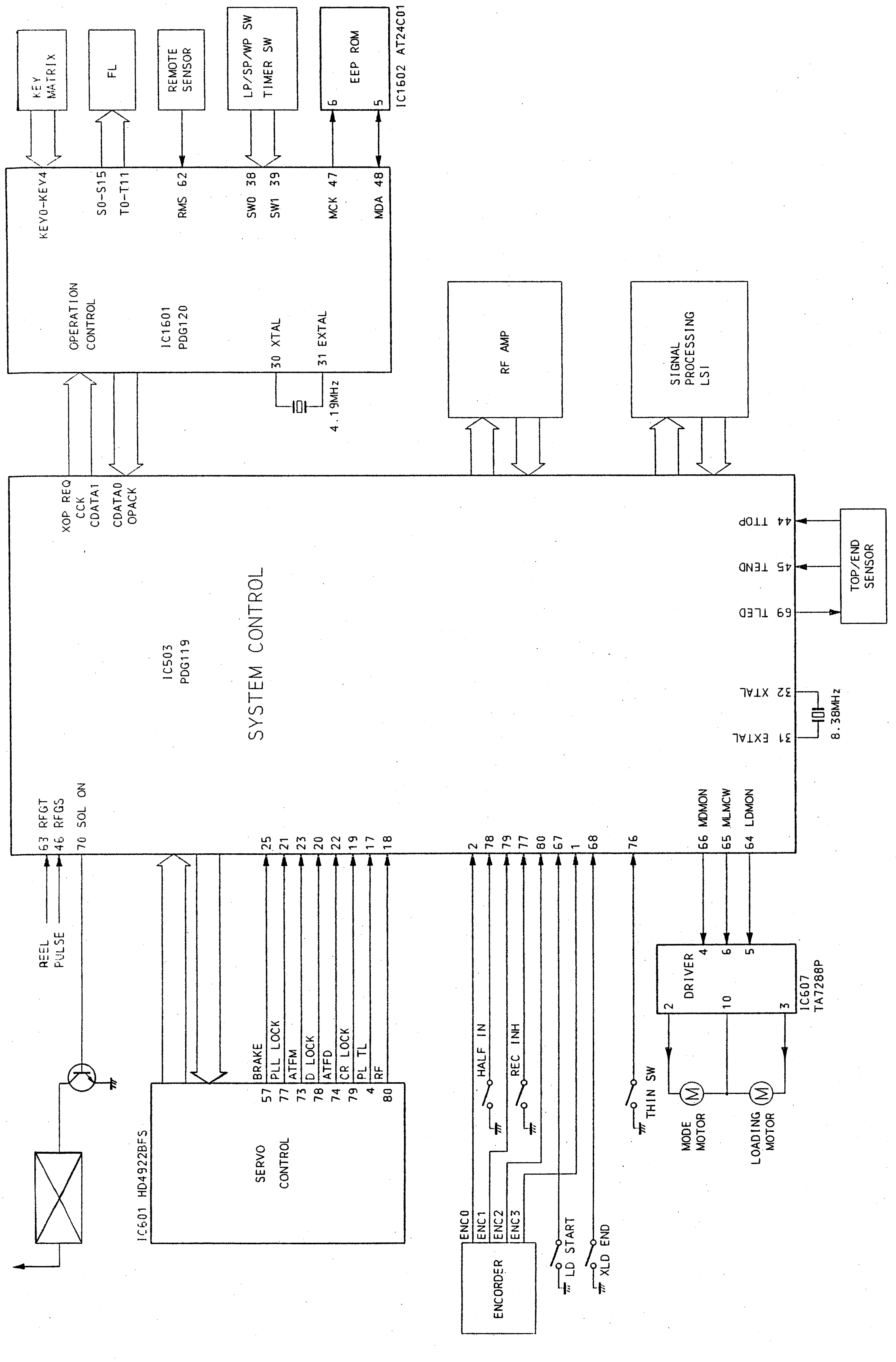
1. SIGNAL PROCESSING SECTION


ANALOG IN
L
R
IC701
IC801
ADC
IC902
AK5340A-VS
ANALOG OUT
IC702
LPF
IC802
DAC
LEGATO LINK
CONVERSION
DIGITAL FILTER
IC903 PD2029A(S)
IC503 (PDG119)
SYSTEM CONTROLLER
X502
8.38M
IC502 (MS62256CLL-10FC)
RAM
MICRO COMPUTER I/F
INTERPOLATION
ERROR CORRECTION
RAM CONTROL
IC501 SIGNAL PROCESSING LSI (HD49226AFS)
IC904-IC906
CLOCK SELECTOR
24M
22M
DINCK
X44PB
X4832PB
DIN
VCO
PLL
LPF
EXCK
PDO
DIGITAL INTERFACE
SERIAL INPUT/OUTPUT SECTION
TIMING GENERATION
REC
PB
RX 83
TX 80
SIN 79
SOUT 71
24M 91
22M 89
65
64
RDATA 22
SWH 27
PDATA 20
PDCK 21
IC504 DATA STROBE
(HD49229)
D
Q
CLK
PLL
MODE SELECTOR DIVIDING
AUTOMATIC REGULATING CIRCUIT
MODE1 (H:x2/L:NORMAL)
FCH
37 RDATA
32 RF
SW
ATF (RF)
INTERFACE
PLAREA
REC/PB
SWH (Ach/Bch)
MODE1 (LP, SP/WSP)
SP/SP
EQ
WSP
EQ
REC VCA
REC VCA
SWITCHER AMP
REC AMP
PB AMP
IC301 RF AMP (HA1215)
RF AMP
RF AMP
A HEAD
B HEAD
OCSL
IC802
DIGITAL IN
COAXIAL
OPTICAL
DIGITAL OUT
COAXIAL

2. SERVO SECTION


DRUM MOTOR
DPG
DFG
U
V
W
18
11
12
13
3 PHASE DRIVER
IC605
27 FRC
19
25
DFG OUT
DERR
IC602
ERROR AMP
6
1
IC603
+5V
IC503
SYSTEM CONTROL
MICRO COMPUTER
XDM ON
XCM ON
CMCW
CAPSTAN MOTOR
CFG
U
V
W
11
12
13
17
27 FRC
3 PHASE DRIVER
IC606
19
25
CFG OUT
CERR
ERROR AMP
IC603
IC604
DRUM PHASE ERROR
DRUM OFFSET ERROR
DRUM SPEED ERROR
BRAKE
REEL OFFSET ERROR
CAPSTAN OFFSET ERROR
CAPSTAN SPEED ERROR
REEL SPEED ERROR
REEL RAMP VOLTAGE
CAPSTAN PHASE ERROR
45
47
49
57
36
37
41
40
38
39
IC601
SERVO CONTROL IC
CONTROL
CAPSTAN REEL OFFSET SYSTEM CONTROL
REC
PB
SWH
70
DRUM PHASE SYSTEM CONTROL
DRUM OFFSET SYSTEM CONTROL
DRUM SPEED SYSTEM CONTROL
CAPSTAN REEL SPEED SYSTEM CONTROL
CAPSTAN PHASE SYSTEM CONTROL REEL THRESHOLD VOLTAGE CONTROL
ATF CONTROL BLOCK
16
SYNCW
DTP 13
DFG 11
PDCK 72
SREF 71
PL ENV 10
FGT 62
FGS 63
CFG 14
PILOT W 19
PILOT L/S 18
SYNC L/S 15
RF DET
REEL FG AMP
REEL
L.P.F
B.P.F
ATF
IC501
SIGNAL PROCESSING LSI
PDCK
DATA
IC504
DATA STOROBE
RF
IC301
RF AMP

3. SYSTEM CONTROL SECTION


KEY MATRIX
FL
REMOTE SENSOR
LP/SP/WP SW
TIMER SW
EEP ROM
IC1602 AT24C01
KEY0-KEY4
S0-S15
T0-T11
RMS 62
SW0 38
SW1 39
MCK 47
MDA 48
OPERATION CONTROL
IC1601 PDG120
30 XTAL
31 EXTAL
4.19MHz
RF AMP
SIGNAL PROCESSING LSI
XOP REQ
CCK
CDATA1
CDATA0
OPACK
SYSTEM CONTROL
IC503 PDG119
44 TTOP
45 TEND
69 TLED
TOP/END SENSOR
32 XTAL
31 EXTAL
8.38MHz
63 RFGT
46 RFGS
70 SOL ON
25
21
23
20
22
19
17
18
2
78
79
77
80
67
1
68
76
66 MDMON
65 MLMCW
64 LDMON
REEL PULSE
DRIVER
IC607 TA7288P
BRAKE
PLL LOCK
ATFM
D LOCK
ATFD
CR LOCK
PL TL
RF
57
77
73
78
74
79
4
80
SERVO CONTROL
IC601 HD4922BFS
HALF IN
REC INH
THIN SW
MODE MOTOR
LOADING MOTOR
ENC0
ENC1
ENC2
ENC3
ENCORDER
LD START
XLD END